

CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Vol. 11

FEBRUARY, 1916

No. 8

TABLE OF CONTENTS.

	PAGE
EDITORIALS—Only Babies That Live Make Nations Great—Tons of Foodstuffs Condemned and Destroyed—Infant Mortality Discredits the Community— Children of Today Citizens of Tomorrow—Handlers of Food to Be Examined—California Interested in Tropical Diseases—Provision for Tuberculosis Care Increased—Alameda Baby Hospital Doing Good Work—	368
INFANT MORTALITY IN CALIFORNIA, by George D. Leslie, Statistician, Cali- fornia State Board of Health—	371
FOR YOUR CHILD, by Adelaide Brown, M. D., San Francisco, Member of the California State Board of Health—	376
INFANT WELFARE WORK IN SAN FRANCISCO, by Elise W. Graupner, San Francisco —	377
INFANT WELFARE WORK IN SOUTHERN CALIFORNIA—Los Angeles, Josephine L. Breed, R. N.; San Diego, Mary H. Taylor, R. N.—	381
PROTECT THE CHILDREN, by Adelaide Brown, M. D., San Francisco, Member of the California State Board of Health—	383
WORK OF THE CHILDREN'S BUREAU, by Dr. Frances Sage Bradley, Wash- ington, D. C.—	384
WHOOPING-COUGH, by William Palmer Lucas, M. D., Physician and Chief of the Children's Department, University of California Medical School—	388
SEWAGE DISPOSAL FOR ISOLATED RESIDENCES, by C. G. Gillespie, C. E., Director, Bureau of Sanitary Engineering, California State Board of Health	391
FEBRUARY MEETING OF THE CALIFORNIA STATE BOARD OF HEALTH	399
POISONING AND TRAPPING OF COYOTES IN NORTHEASTERN CALI- FORNIA—Report of the Bureau of Administration for January, Wilbur A. Sawyer, M. D., Director—	401
INVESTIGATIONS OF TYPHOID FEVER IN REDDING—Report of the Bureau of Communicable Diseases for January, James G. Cumming, M. D., D. P. H., Director —	403
BIRTHS, DEATHS AND MARRIAGES—Report of Bureau of Vital Statistics, George D. Leslie, Director—	408
FEDERAL BILL FOR AID IN SUPPORT OF NON-RESIDENT TUBERCULOUS FAVORED—Report of the Bureau of Tuberculosis, E. L. M. Tate, Director	412
WINTER RAINS SPUR ACTION ON SEWAGE DISPOSAL SYSTEMS—Report of the Bureau of Sanitary Engineering, C. G. Gillespie, C. E., Director—	416
SALVAGE FOOD SALES BRING ABOUT CONDEMNATION OF TONS OF FOODSTUFFS—Report of the Bureau of Foods and Drugs, E. J. Lea, Director —	420
LIBRARY BRANCHES ESTABLISHED IN COUNTY HOSPITALS—Report of Bureau of Registration of Nurses, Anna C. Jammé, R. N., Director—	434
LIST OF CITY AND COUNTY HEALTH OFFICERS—	436

MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

¶ Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

WILBUR A. SAWYER, M.D., Secretary and Executive Officer . . . Editor
GUY P. JONES, Morbidity Statistician . . . Associate Editor

Only Babes That Live Make Nations Great.

The growth of population, as of other forms of wealth, results not only from increases in gains but also from the diminution of losses, the excess of births over deaths being enlarged by a rise in the birth rate but also, perhaps more, by a fall in the death rate. The lessening of infant mortality offers great opportunities for the reduction of the general death rate in California, since about one-ninth (an average of 11.1 per cent) of all deaths in this State since 1906 have been among infants less than a year old. In the joy that heralds the birth of a babe there should also be care lest the life thus begun be ended too soon. Unless the infant lives the national gain is *nil*.

★ ★ ★ ★ ★

Tons of Foodstuffs Condemned and Destroyed.

Tons of foodstuffs have recently been condemned and destroyed by the California State Board of Health. Professor E. J. Lea, Director of the Bureau of Foods and Drugs, is conducting a fearless warfare against persons who have filthy, decomposed foodstuffs that they are attempting to sell to the public. These foodstuffs consist of raisins, figs, tomato catsup, pickles, cauliflower, onions, miscellaneous canned goods and cereals. In one lot there were ten thousand pint bottles of catsup and sixteen hundred and twenty-five gallons of pickles. In fact, the State Board of Health has been destroying these putrid materials by the car load. Some of them are burned, some are covered with coal oil and some are converted into fertilizer. Besides the foodstuffs above enumerated, during January several tons of ducks, geese, chickens, turkeys, etc., in cold storage, have been condemned and destroyed because of their decomposed condition.

★ ★ ★ ★ ★

Infant Mortality Discredits the Community.

A low and decreasing rate of infant mortality marks the attainment of a high degree of civilization. Statistics for the principal foreign countries for some decades past show that in all parts of the civilized world there have been marked decreases in the rate

of infant mortality per 1,000 births. Although vital statistics are less complete in America than abroad, it appears from the data available for the United States that here also the rate of infant mortality has been declining in recent years. Recent figures for California likewise indicate that this State has a relatively low rate of infant mortality, though further improvements in birth registration are needed to establish our good standing in this regard. Moreover, there are some places in the State where for the good name of the community there should be fewer deaths among infants.

★ ★ ★ ★ ★

Children of Today

Citizens of Tomorrow.

The child of today is the citizen of tomorrow. Infant welfare work, of which so much is being carried on at the present time, will undoubtedly show its best results ten and twenty years from today. Physical defects discovered in early life and corrected, determine, to a great degree, the future health of the adult. Adenoids, defective teeth, defective eyesight and defective hearing in childhood, if neglected, may be a great handicap to the adult. Citizens of today were children of yesterday. How many can look back to physical defects of their own childhood, which, allowed to go neglected, have cost them ill health and great economic losses?

★ ★ ★ ★ ★

Handlers of Food to be Examined.

San Diego is considering the adoption of an ordinance requiring the medical examination of all restaurant employees and handlers of foodstuffs.

Many cases of tuberculosis and of syphilis are found in this class of employees, and certainly no one suffering from either of these diseases should be permitted to handle any foodstuffs. Diseased employees are often seen in restaurants which, from all appearances, are as sanitary as a surgeon's room. The New York city health department has recently examined thousands of employees engaged in handling foodstuffs in restaurants, factories, bakeries and stores. It will not be long before the general public will demand that this same procedure be adopted everywhere.

★ ★ ★ ★ ★

California Interested in Tropical Diseases.

Members of the faculty of the University of California Medical School are giving a series of lectures upon tropical diseases, a lecture being given at ten o'clock every Saturday morning at the University of California Hospital, Second and Parnassus avenues, San Francisco. Each lecture is followed by clinical demonstrations, the discussion of clinical histories and demonstrations with specimens and pictures. The University regards tropical medicine as of particular importance to California, because of the increasing commercial relations between California and the tropical countries, the white man's opportunity to live and work in the tropics being dependent upon the control of the tropical diseases.

Provision for Tuberculosis Care Increased.

In New York five years ago, it was thought that the minimum number of beds devoted to the care of the tuberculous should be one-half of the annual number of deaths from tuberculosis. In some counties this minimum has been reached and the number is found to be insufficient. The standard has therefore been raised to one bed for each annual death from the disease. According to this standard, there should be more than five thousand beds in California in county hospitals devoted to tuberculosis. As a matter of fact, however, there are eight hundred and twenty-five such beds. Under the new subsidy law, however, this number is increasing every month, and in time, California may have adequate provision for all of the tuberculous within the State.

★ ★ ★ ★ ★ ★

Alameda Baby Hospital Doing Good Work.

The Baby Hospital Association of Alameda County is accomplishing a remarkably good work. In fifteen months six hundred and thirty babies have been cared for in the hospital and all for the sum of \$45,000. The work of Miss Bertha Wright, Superintendent of Clinics and Home Visiting, is most commendable. During 1915 eleven hundred and sixty-two children were cared for by the clinics and visiting nurses and only three of these children have died. This is the sort of work that counts.

★ ★ ★ ★ ★ ★

Economic Losses Due to Malaria.

Dr. James G. Cumming, Director of the Bureau of Communicable Diseases, recently investigated malaria in one of the smaller towns in the interior of the State. In his report Dr. Cumming states: "The physicians agree that the malarial practice amounts to 50 per cent of their total. Sixty-two individuals of this community were questioned regarding the number of laboring days lost each year on account of malaria. This was found to be an average of twenty days per individual. There is a total population of 3,000 and if the number infected is figured at the conservative estimate of 50 per cent, and there is allowed a \$2.00 per day wage, the economic loss in wages alone is \$60,000 annually. It is also stated that in the great majority of cases of severe injury or shock, such as the breaking of a leg, or after child-birth, that latent malaria becomes evident. In fact, the prevalence of the disease is so well recognized that quinine treatment is given preliminary to all major operations." Citizens of this town have united in co-operating with Dr. Cumming and with the State Board of Health in the control of malaria in their city.

INFANT MORTALITY IN CALIFORNIA.*

By GEORGE D. LESLIE, Statistician, California State Board of Health.

The conservation idea of saving treasures today for posterity's sake is applied mainly to natural resources like the "forest primeval," or power sites, or scenic wonders. Yet, there is likewise the preservation of humanity itself through workmen's compensation laws, with measures for safety first. And the time has come now for the conservation of childhood by saving the babies.

There is special need for saving babies in California where the number of children seems relatively small. Through lack of birth registration in most American states and possible deficiency in California returns as yet, the comparison between the whole nation and this State must be made from census data on the proportion of children to potential mothers, as follows:

Children Under 5 Per 1,000 Women, 15 to 44.

	1910	1900	1890	1880
United States -----	489	518	529	609
California -----	349	372	414	552
Difference -----	140	146	115	57

Similar contrasts appear in the following figures for only the married women of child-bearing age:

Children Under 5 Per 1,000 Married Women, 15 to 44.

	1910	1900	1890
United States -----	844	929	957
California -----	598	692	764
Difference -----	246	237	193

The census data showing that the proportion of children to potential mothers is much less for this State than for the entire nation require some qualification. California attracts so many people from other states and foreign countries, especially in the migration hither of unmarried adults or of families with their children already born elsewhere, that the natural growth of population here is lost sight of in the greater stream of these new arrivals from other places.

Yet special tabulations from the very latest state returns indicate that for the great bulk of births in California cities the infant was only the first or second born to the mother. This appears from statistics of births from January to October, 1915, in the three leading cities (Los

*Read at the Infant Mortality Conference, held under the auspices of the California Pediatric Society (Northern Branch), in San Francisco, Nov. 29, 1915.

Angeles, San Francisco and Oakland), whose totals represent about two-fifths of the birth registration in the whole State. The figures follow:

Per Cent of Births, January to October, 1915.

Order of birth	Three cities	Los Angeles	San Francisco	Oakland
Total -----	15,419	6,613	6,301	2,505
	100.0	100.0	100.0	100.0
First born -----	40.2	40.4	40.1	39.7
Second born -----	24.8	24.5	24.4	27.0
Third born -----	12.9	12.4	12.8	14.2
Fourth born -----	7.4	6.9	8.0	7.2
Fifth born -----	4.1	3.9	4.4	4.0
Sixth born -----	2.4	2.4	2.6	1.9
Seventh born -----	1.7	1.6	1.9	1.5
Eighth born -----	1.0	1.0	1.0	1.1
Ninth born -----	0.7	0.6	0.8	0.6
Tenth and over -----	1.0	1.0	1.0	0.9
Unknown -----	3.8	5.3	3.0	1.9

The table shows that for the three cities together no less than 40.2 per cent of all babies were the first born to the mother, 24.8 per cent were the second born, 12.9 per cent were third born, and 7.4 per cent were fourth born. Thus, altogether 85.3 per cent of the births were in families with but one to four offspring as compared with merely 10.9 per cent for mothers bearing as many as five children or more, the order of birth being unknown for the remaining 3.8 per cent.

There are few differences between the three cities individually, except that in Oakland the per cents are relatively higher than in either San Francisco or Los Angeles for children who were the second or the third born to their mothers.

With two-fifths of all California babies the first born and altogether two-thirds only the first or second born, it is indeed important that these infants be saved if their families are to be represented in the next generation. Fortunately, however, the fewer the babies born to a mother the lower is the infant mortality rate.

Until birth registration is surely as complete as the reporting of deaths, the infant mortality rate (or ratio of deaths under one year per 1,000 births) can be given only approximately as follows in comparison with the California birth rate:

Year	Birth rate per 1,000 population	Infant mortality rate per 1,000 births
California—		
1914 -----	16.7	86
1913 -----	16.4	99
1912 -----	15.2	100
1911 -----	14.0	101
1910 -----	13.4	116

More complete birth returns should show an even lower infant mortality rate in years to come, the apparently high rates for early years being due more to deficient birth registration than to excessive

infant mortality. However, the steady decrease in the infant mortality rate between 1910 and 1914, which partial returns for 1915 show to be continuing, is confirmed by the fact that the per cent of deaths under one year to total deaths at all ages has likewise been declining in general through the same period.

It is an interesting fact that infant mortality is invariably greater for boys than for girls as here shown:

Infant Mortality Rate per 1,000 Births.

Sex	1914	1913	1912
California—			
Male -----	95	109	111
Female -----	77	88	89

Similar contrasts appear for all geographic divisions in 1914, though shown here only for selected areas:

Infant Mortality Rate per 1,000 Births, 1914.

Area	Male	Female
San Francisco -----	91	73
Alameda County -----	102	68
Los Angeles City -----	83	67
Rest of Los Angeles County -----	82	79

Infant mortality rates for geographic divisions and selected areas as well, as shown in the accompanying table, together with supplemental ratios as checks thereon for deaths under 1 year per 1,000 deaths at all ages:

Infant Mortality Rate per 1,000 Births, with Comparative Ratios of Deaths Under 1 Year per 1,000 Deaths at All Ages, for Geographic Divisions, 1914.

Geographic division	Infant mortality rate per 1,000 births, 1914	Ratio of deaths under 1 year per 1,000 deaths at all ages, 1914	Annual average ratio of deaths under 1 year per 1,000 deaths at all ages, 1909 to 1913.
The State -----	86	106	110
Northern California -----	75	80	84
Coast counties -----	88	80	75
Interior counties -----	65	80	93
Central California -----	87	105	115
San Francisco -----	82	91	105
Other bay counties -----	87	112	121
Coast counties -----	89	96	106
Interior counties -----	91	122	125
Southern California -----	88	113	112
Los Angeles -----	77	105	107
Other counties -----	113	129	120
Northern and Central California -----	85	101	109
Coast counties -----	85	96	105
Interior counties -----	85	112	117
Metropolitan area -----	84	99	111
Rural counties -----	86	103	108
Selected areas—			
Alameda County -----	85	108	112
Three other bay counties -----	96	125	123
Los Angeles City -----	75	110	108
Rest of Los Angeles County -----	80	98	104

The infant mortality rate appears to be highest for the counties of southern California other than Los Angeles, 113, and next for the interior counties of central California, 91 per 1,000 births. The rate is 82 for San Francisco against 85 for Alameda County, but is only 77 for Los Angeles County and merely 75 for Los Angeles City.

The principal causes for deaths among infants in California are indicated in the table that follows:

Number and Per Cent of Deaths Under 1 Year from Certain Principal Causes, for California, 1914.

Cause of death	Deaths under 1 year, 1914		Annual average per cent, 1909 to 1913
	Number	Per cent	
California—			
All causes -----	3,964	100.0	100.0
Diseases of early infancy-----	1,454	36.7	32.0
Diarrhea and enteritis-----	741	18.7	23.6
Other diseases of digestive system-----	68	1.7	2.1
Pneumonia and broncho-pneumonia-----	583	14.7	12.5
Other diseases of respiratory system-----	88	2.2	2.7
Whooping-cough -----	172	4.3	3.1
Other epidemic diseases -----	85	2.2	2.2
Diseases of nervous system-----	140	3.5	4.5
Tuberculosis (all forms)-----	110	2.8	3.5
All other causes-----	523	13.2	13.8

In general, about one-third of the deaths among California babies are from causes peculiar to early infancy, such as premature birth, congenital disability, injuries at birth and sometimes lack of care, the per cent for all such deaths being 36.7 for 1914 against 32.0 for 1909 to 1913. However, diarrhea and enteritis cause about one-fifth of the deaths among babies, the per cent being 18.7 for last year against 23.6 for the preceding five year period. Pneumonia and broncho-pneumonia cause about one-seventh or one-eighth of infantile deaths, the per cent being 14.7 for 1914 against 12.5 for 1909 to 1913. Last year whooping-cough caused 4.3 per cent of the deaths of babies as compared with only 2.2 per cent for all other epidemic diseases. Meningitis and other nervous disorders caused 3.5 per cent of the deaths, while tuberculosis (mainly tuberculous meningitis) caused altogether 2.8 per cent.

An additional table is presented to show the per cent of deaths occurring from each of the four leading causes of infant mortality in the several geographic divisions and selected areas as well:

Per Cent of Deaths Under 1 Year from Selected Leading Causes, for Geographic Divisions, 1914.

Geographic division	Per cent of deaths under 1 year, 1914			
	Diseases of early infancy	Diarrhea and enteritis	Pneumonia and broncho-pneumonia	Whooping-cough
The State -----	36.7	18.7	14.7	4.3
Northern California -----	43.8	12.7	13.0	6.7
Coast counties -----	47.5	10.6	13.1	6.3
Interior counties -----	40.0	14.8	12.9	7.1
Central California -----	35.9	17.3	15.7	5.4
San Francisco -----	37.4	12.3	17.2	5.2
Other bay counties -----	35.8	13.7	18.0	6.6
Coast counties -----	34.2	21.9	11.0	5.9
Interior counties -----	35.1	22.6	14.4	4.6
Southern California -----	36.3	21.8	13.7	2.3
Los Angeles -----	39.2	18.1	15.3	1.8
Other counties -----	31.5	28.1	10.9	3.3
Northern and Central California -----	36.9	16.7	15.4	5.6
Coast counties -----	37.4	14.1	16.1	5.9
Interior counties -----	36.0	21.3	14.1	5.0
Metropolitan area -----	36.7	12.9	17.6	5.9
Rural counties -----	37.1	20.1	13.4	5.3
Selected areas—				
Alameda County -----	33.6	14.9	18.2	7.0
Three other bay counties -----	42.5	10.2	17.3	5.5
Los Angeles City -----	40.4	19.1	14.0	1.0
Rest of Los Angeles County -----	37.1	16.2	17.6	3.3

In connection with the maximum infant mortality rate noted for the counties south of Tehachapi other than Los Angeles (113 against the state average of 86), it is indeed significant that this same geographic division shows by far the highest per cent of infantile deaths from diarrhea and enteritis (28.1 against the general average of 18.7). Similarly, the interior counties of central California, with the second highest infant mortality rate (91 per 1,000), have the second highest per cent of deaths from cholera infantum, etc. (22.6).

Analysis of per cents of deaths by principal causes for each sex gives no explanation of the greater infant mortality rate shown for boys than for girls. This point awaits further study under improved birth registration.

Large sums spent for the study and prevention of sickness among live stock may of course be justified by the saying that there is money in hogs. Yet human stock has monetary value too, or else nations and states would not make the efforts they do, as in elaborate exhibits at the Exposition, to attract new settlers within their borders. Hence, it is good sound business, as well as human kindness, that further study be made not only of hog cholera, but also of cholera infantum. Each and every worthy person adds real value to the nation, and any humble mother's tiny babe today may be the world's great prophet of the future!

FOR YOUR CHILD.

Two Investments With Sure Returns in Future Health.

By ADELAIDE BROWN, M.D., San Francisco, Member California State Board of Health.

I.

Care of the Teeth.

From the first appearance of the first tooth, care of the teeth should begin. Clean mouth, clean tongue should be secured from birth. *Plenty of water to drink* and a daily washing of the mouth, *tongue and gums* with a saturated solution of boric acid secures this.

2. Have an orthodontist assure you that the first teeth are **coming** in well. A bad bite of the jaws where the lower teeth bite **ahead** of the upper teeth may be corrected in an eighteen-months-old baby **in** a few weeks, and take *years* in an eight-year-old child.

3. Take the child to a dentist at six month intervals at **least** from three years on, to have the teeth kept clean, early decay **in** the first teeth prevented, and the child accustomed to dental manipulations.

4. *Remember* that by five years of age the first permanent molar tooth comes through and many parents do not know that this is a permanent tooth because they have not taken the child to a dentist. **These** teeth are lost by early decay and the girdle of the permanent teeth **is** broken. The later molar teeth cut at twelve and eighteen years of **age**, slip forward and present irregular coaptation with the other jaw, **and** are themselves lost early. More poor digestion is due to poor **chewing** than any other cause. Poor chewing is caused by a poor fit between **the** two jaws, and the loss of the six year molars is at the root of this **difficulty**.

5. Have daily attention to the teeth and tongue a part of the **hygiene** of childhood. On rising and retiring *at least* the teeth **and** tongue should be cleansed.

6. Teach the child to *chew* in the second year of life. Good **teeth** are one guarantee of good health.

II.

Care of the Throat.

A clean mouth in babyhood, the avoidance of the sucking habit, means less irritation of the tonsils and adenoids. Cold daily sponge **baths** of neck and chest increase resistance to colds. However, when **all** is said, the abnormal increase of adenoid and tonsillar tissue presents **a** menace to the health of childhood.

The running nose, the sore throat, are active evidences of **difficulty** in this region. But the less prominent irritations are the more **dangerous**. Slight deafness, earache, mouth breathing from the nasal **blockade**, and its result in deformed jaws; the lamed heart, the retarded **general** development of the child, all mean an insidious poisoning is going on.

When any symptoms in the nose or throat arise, and the **removal** of tonsils and adenoids is suggested, remember as parents, it is **an** *investment for future health*. The child may live without it, but **after** three or four years, when again called to your attention by a physician, the

more insidious difficulties will have asserted themselves and the operation be less successful in its results.

A poor ear, an imperfect heart, a deformed jaw, or a backward child in physical development are *prevented* by the early investment by parents in *clean throats and noses*.

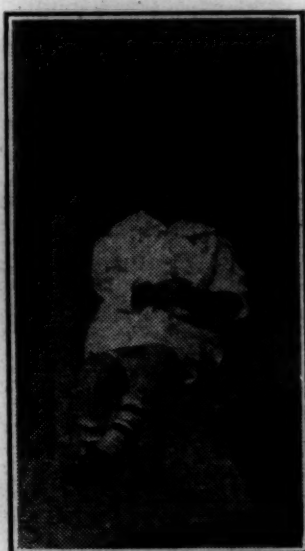
INFANT WELFARE WORK IN SAN FRANCISCO.

A Report of the Certified Milk and Baby Hygiene Committee Work of the Association of Collegiate Alumnae.

By ELISE W. GRAUPNER.

The feeding clinic held weekly at the San Francisco Associated Charities, during the past six years, has given a set of statistics in social work that make a spectacular plea for home care, certified milk and medical supervision for the dependent baby.

The mortality among the babies in the foundling home during the two last years of its existence, from 1906 to 1908, had been 46 per cent and 59 per cent respectively. All the facts confirmed the belief that even a mediocre home for the infant would give better results than institutional care.



The baby today



The same baby when left with Associated Charities.

The Associated Charities, through Miss Felton, conceived the idea of boarding these babies with foster mothers, in order to insure individual care. During this first year, seventy-two babies were boarded out with women of the self-respecting working class, each working out her own problem; as she had previously done for her own children. She chose her own dairy man and consulted the physician only when the baby was really ill.

Mortality Reduced Greatly.

In this first experimental year, which gave to the child individual care, but made no provision for certified milk or nursing supervision, the mortality was reduced to 12 per cent.

At this time the Collegiate Alumnae Association became interested in baby hygiene work. Realizing the need for a pure-milk supply, it assumed the responsibility of paying the difference in the cost between the regular commercial and certified milk.

Dr. Adelaide Brown, a member of the baby hygiene committee, was asked by Miss Felton to put the feeding class on a sound scientific basis by organizing a medical staff that would direct the feeding. Dr. Florence Holsclaw, Dr. Anna Rude and Dr. E. C. Fleisner assumed the responsibility of establishing the feeding clinic. Provision was made at this time, through the gift of Miss Chamberlain, for the salary of a visiting nurse. The nurse chosen, Miss Ida McCune, has shown special interest and aptitude in this phase of social work.

With this machinery at hand, certified milk, medical staff and visiting nurse, the experiment was launched. In the first year, after certified milk and medical supervision had been added to the individual care of a foster mother, the mortality dropped from 12 per cent to 8.5 per cent. The past five years show a steady decrease in the mortality, reaching respectively 2.8 per cent and 2.6 per cent the past two years.

Young Mothers Seek Advice.

The significance of this work is indicated not only by the drop in the mortality among this group of dependent babies in San Francisco, but by the fact that an increasing number of young, but untrained, mothers, with their own babies, are seeking advice at the clinic.



The babies are brought every Friday morning to the clinic held in the San Francisco Associated Charities Building. Physicians and nurse are in attendance, to direct the feeding and care.

The educational value of the feeding clinic must necessarily be far reaching. The visiting nurse teaches the mother or foster mother, in her own home, how to properly modify the milk and care for the bottles. The woman, thus taught, profits as she could not, were the milk given or sold to her, already modified, at some settlement or milk depot. Not only is the well-being of the particular family, thus reached, effected, but each woman, thus scientifically taught, becomes a torch-bearer in her own circle or neighborhood, burning away many an old superstition on the care of the baby.

The morbidity record shows a strikingly low percentage of tuberculosis, undoubtedly due to the use of certified milk. Of eleven hundred babies cared for during the past five years, but seven cases of tuberculosis are recorded.

The following statistical mortality record is of interest:

			Mortality per cent
77 babies boarded in foundling asylum	-----1907-08	59	
72 babies boarded in private homes, feeding and care not regulated. Food, regular commercial milk	-----1908-09	12	per cent
164 babies boarded in private homes. Food, certified milk	1909-10	8.5	per cent
168 babies boarded in private homes. Food, certified milk	1910-11	5.3	per cent
187 babies boarded in private homes. Food, certified milk	1911-12	5.8	per cent
214 babies boarded in private homes. Food, certified milk	1912-13	3.28	per cent
280 babies boarded in private homes. Food, certified milk	1913-14	2.8	per cent
278 babies boarded in private homes. Food, certified milk	1914-15	2.6	per cent

The certified milk and baby hygiene committee has not confined its co-operation on Infant Welfare Work to the San Francisco Associated Charities. Having proved the value of clean milk from healthy cows, it has been the means of supplying certified milk to several other groups of infants. In San Francisco to—

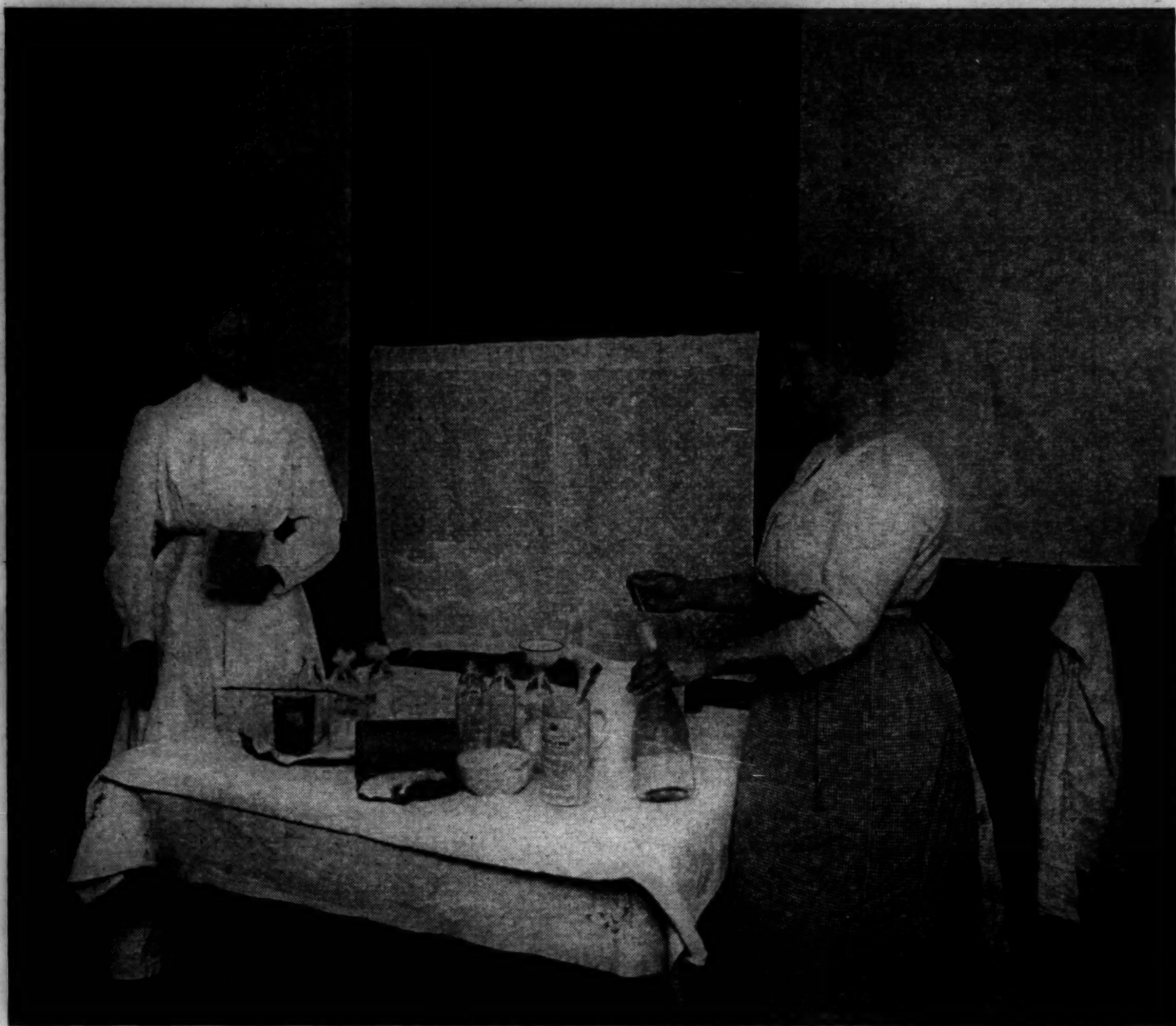
The Florence Crittenden Home.
The Children's Hospital—the free ward babies—for one year.
The Nurses Settlement, Potrero.
The Telegraph Hill Settlement, and
The Fruit and Flower Mission.

In Alameda County to—

The Oakland Associated Charities.
The Baby Hospital of Alameda County.
The Out Clinic of Baby Hospital.
The Berkeley Charity Organization.
The West Berkeley Dispensary, and
The Berkeley Day Nursery.

Will Visit Foster Homes.

Through the initial efforts of the committee, both in San Francisco and Alameda counties, a health circular on the care of the baby was compiled and mailed to every mother registering the birth of a child. The clerical work and expense of postage during the first year was borne by the committee members. In 1913 and 1914 the different local boards of health assumed the responsibility of mailing these baby hygiene circulars, upon the receipt of the birth certificate. Several babies have been taken to the Alameda County Baby Hospital in immediate response to these circulars. In San Francisco, they are printed in English, French, German, Italian and Greek.



A visiting nurse giving instructions in the home of a foster mother that she may carry out clinic doctor's directions.

During the months of the Panama-Pacific Exposition in San Francisco, the committee worked with the Federal Children's Bureau. A nurse was employed who gave demonstrations and instructions in the proper modification of milk and the general care of the baby. Once each week a baby clinic was held at the bureau headquarters, under the joint auspices of the committee and the San Francisco Associated Charities, showing what scientific care and feeding had done for that group of dependent babies.

Realizing that education is one of the chief factors in reducing infant mortality, the committee plans an extension of its work in order to reach a new group of babies. A trained nurse has been employed, whose duty it will be to visit foster homes, in San Francisco, where babies are boarded by their own working mothers. These homes are licensed by the city board of health, but as yet have no nursing or medical supervision. It is to supply this need that the baby hygiene nurse will be employed. She will teach the foster mother the same fundamentals of infant care that has given the splendid results with the group under the Associated Charities. This nurse will have the full backing and co-operation of the city board of health and will have her headquarters in that office. Her salary will be paid by the *alumnæ* committee.

The world-wide campaign for the conservation of infant life is one of the wholesome signs of our time. This record indicates what can be done when the three factors—individual care, a safe milk supply, and medical and nursing supervision—are combined.

INFANT WELFARE WORK IN SOUTHERN CALIFORNIA.

LOS ANGELES.

The work in connection with the milk stations in Los Angeles is under the direct supervision of the Health Department. So far as we know, this department is making the only systematic attempt in the city toward compiling statistics following lines of prevention for children under two years of age as advocated by the Federal Bureau.

We have one central milk station and six other stations where conferences are held. Four of these serve as milk depots under the central station. One physician and one nurse are in attendance at each conference. Here mothers, rich or poor, bring their babies once a week for weighing and for general advice in regard to nursing, bottle-feeding, weaning, bathing, feeding, etc.

When babies brought to any of these conference stations are in need of certified milk, efforts are made to meet this need if the parents are unable to buy it. Should it be for a difficult feeding case an order for the milk to be modified is sent or carried to the central station by the nurse at the conference to which the child is brought. There are other conditions where a temporary modification is necessary or advisable.

Milk is prepared for three substations and sent from the central station at 12 m. daily. At the fourth substation it is delivered direct by a regular dairy delivery and dispensed in quarts or pints. We are getting away from station modifications as much as possible and are gradually teaching people to modify the milk in their own homes whenever it is necessary to feed an infant artificially. The whole milk is also sent to the substations through the central station for these home feedings. At this writing we are modifying for ten babies and sending the whole milk to 43 other homes for the mothers to prepare themselves or dispense with as the conference physician has directed.

Milk is furnished for babies under two years of age and occasionally over that age if the condition of the child requires our special care. Breast feeding is always encouraged if possible and we have many proofs of what can be accomplished by patient and persistent effort. At the present time 11 mothers are receiving gruel or whole milk through the central station to encourage the breast feeding.

Recipes are given for cereal waters and gruels, and also for plain soups and broths for children when weaning time begins. For nursing mothers wholesome drinks as gruels, cocoa shells (steeped the same as tea), and malted milk are advocated. Senna prunes and bran bread are recommended to overcome the constipation of mothers, and recipes given for same. Occasionally the actual articles are furnished, to add interest.

The conferences are patronized from all quarters of the city.

All maternity cases under the service of the Health Department are urged to attend the conferences as soon as able.

A weight chart of each baby is kept, showing how its weight compares with the average normal baby's, which is indicated by a red line.

Five hundred and twenty different mothers attended our conferences during the year 1915; 273 babies received milk, 42 mothers were given milk or gruel, and 11,461½ quarts of milk were used.

The aim is prevention, first, last, and always. True prevention lies in education.

Daily encouragement comes to us from the eagerness with which questions are asked in regard to the little difficulties connected with babyhood so many times overlooked or cast aside. Our incentive to further effort is the expressed appreciation of the mothers themselves.

JOSEPHINE L. BREED, R.N.

SAN DIEGO.

In December, 1915, the women of the Humane Educational League made a survey of the city of San Diego to ascertain the number of underfed and starving children. As a result they solicited funds and through the kindness of Mr. Walter Dupree in supplying certified milk for the babies, and the Producers' Mutual Dairy Association in supplying pasteurized milk for the older children, they were able to start a milk station for the relief of these children.

The County Dispensary offered the use of one of their rooms and the County Hospital supplied a student nurse. The work was very successfully started. After one month of experiment the city appropriated a fund of \$5,000.00 to carry on the work for a year. A registered nurse who has had large experience in the care of infants and milk was appointed to take charge of the work. After a thorough survey of the city it was decided that one central station at the Settlement House on the corner of Beardsley and National avenues in the poorer section of the city was needed in addition to the station established at the County Dispensary.

We went into our main station on January 13, 1916. In a little less than a month we have treated in both stations 34 cases, advised 11 mothers in the care of children at home, taught 9 home modification, seven of whom are coming to the station for their milk. Some member of the family comes, and we dispense just the quantity of milk needed for each day's modification which the mother prepares at home. On our second visit she shows her work and the care of the bottles and utensils with great pride. We have referred 2 cases to the County Hospital, 16 to the County Dispensary, 3 to the Associated Charities and investigated and advised 60 families.

There is a class of instruction in prenatal work, and there is a class every Saturday morning instructing the girls in the vicinity of the Settlement House in the care of the bottles and milk. We hope to be able, not only to teach the poorer class of girls, but the well-to-do later on. Once a week we have a weighing day, and every child having milk or home treatment comes to be weighed. Once a week a general clinic is held for advice and instruction, as we are trying to impress upon the mothers that in this climate the second nutritive period is of as much importance, if not more, than the first, in the care of the child.

Besides the actual classes and the distribution of milk, the nurse in charge looks over the birth records of the city and visits the homes of all in the poorer districts, and gives help or advice, or both if needed. A large proportion of our patrons are either of Mexican birth or Mexican parentage. If an interpreter is needed some neighbor gladly fills the place. In going into a house filled with children, dirt and foreigners, we say, "If you will clean up I will let you have free milk for

the baby." On our second visit we find great efforts have been made. We always find the floor clean and some attempt at order, so we feel that besides the real physical relief we are supplying, we are educating a future generation to be strong, law-abiding, clean citizens. We have for co-operating agencies the churches, County Dispensaries and Clinic, the Settlement House, Associated Charities, and all of the organized charities of the city.

MARY H. TAYLOR, R.N.

PROTECT THE CHILDREN.

Follow Up Every Case of Tuberculosis.

By ADELAIDE BROWN, M.D., San Francisco, Member California State Board of Health.

Whenever the patient with tuberculosis is a member of a family unit, the exact condition of the physical health of each member of the family group should be ascertained, and brought up by advice and care to its highest terms. To render the soil unfit for the implanting of tuberculosis is the only way to eradicate it. *Better health means more resistance.*

A Follow-up Case.

Mrs. P., a widow of forty-four, with two children, eight and six, consulted a physician for nervous condition and bad digestion. The history showed that the husband, a man of forty-six, had died two months previously of "quick consumption"—in bed six weeks. He had consulted a "lodge doctor" some two years before for "catarrh"; had been at work until this last illness. After his death the premises had been fumigated and the wife was intelligent enough to repaper and paint, as well as wash all bedding, etc. The examination of her chest showed beginning tuberculosis, her weight was far below average. The children were then examined. The girl had a "running" ear, bad tonsils and adenoids. Within two days, an acute mastoid developed and the girl was operated on, and six months later her tonsils and adenoids were removed. The boy of six was found with bad tonsils and adenoids and was operated on at once.

After seven weeks in a sanitarium, the mother came home to sleep in an open-air room, three windows and a door being open, and with a gain of ten pounds which she is still holding.

The follow-up work on this family represents the type of work which must be done to remove the chance of infection of others in a family by the first active case.

The greatest advantage to the community of the sojourn of the tubercular patient in a sanitarium for a few months is that by this care and discipline the patient learns to be less of a menace to other people.

THE WORK OF THE CHILDREN'S BUREAU.*

By DR. FRANCIS SAGE BRADLEY, of the Children's Bureau, U. S. Department of Commerce and Labor.

The United States Children's Bureau, under the Department of Labor, is, as its name implies, a federal activity devoted to the interests of the American child. Its function is to investigate and report upon conditions affecting the welfare of the child as found in different sections of the country. It also publishes a series of bulletins on such subjects as Infant Mortality, Prenatal Conditions, Birth Registration, and Infant Care. Studies of child labor, and of laws affecting children, of feeble-mindedness and of illegitimacy, are under way and will be the subjects of published reports. In addition to this, certain projects are undertaken, as Child Welfare Exhibits and Children's Health Conferences. Such exhibits have been held through the co-operation of various private organizations and civic bodies in several cities of this country, similar to the one recently conducted by the Bureau in connection with the Panama-Pacific Exposition at San Francisco.

Most of the child welfare work attempted in this country so far, has been directed towards the sick child—in hospitals, clinics, dispensaries, milk stations and the like. But a few years ago, the experiment was tried of reaching the child from another angle, and better babies contests were organized for the purpose of improving the apparently well child. The contest sprang into instant popularity. It stimulated wholesome effort, and excellent results followed, especially in places where repeated contests have been held so that the child may compete with its own previous score instead of that of a neighbor's child. The contest initiated a valuable piece of public health work by agitating public opinion and directing attention to the need and possibility of up-grading the American child.

But the hospital and clinic appealed only to sick children and the contest appealed only to prospective prize winners, leaving out the great rank and file of children who nevertheless need help. It is believed that much, perhaps most, of our infant mortality, is due to the ignorance of parents. The average mother is doing the best she knows how and is eager for dependable suggestions on the care of her child. When we find her weaning her baby at 2, 3, or 4 months upon the advice of a friend or neighbor; when we find her using, at 6, 7, or 8 months the formula given her 2-weeks old infant at the hospital; or perhaps the formula which agreed with another child; when we find a young couple refusing to believe that their child is deaf, dumb, and blind; or, with an idiot child, complacently expecting better luck next time; when an otherwise intelligent mother, on her own responsibility, gives her child electricity, thyroid extract, or tuberculin because it cured the child of her neighbor; these and similar cases, *ad infinitum*, point to the need of parents for an education which none but members of the medical profession can give; point to the right of the child for the protection of such an organization as this Pediatric Society.

The Children's Health Conference is being offered by the Bureau as one method of reaching this great class, eligible neither to clinic nor

*Read at the Infant Mortality Conference, held under the auspices of the California Pediatric Society (Northern Branch), in San Francisco, Nov. 29, 1915.

contest. Through the walls of its glass-enclosed room, it is hoped that the conference may be of educational value to the observing public outside, while within the enclosure, a physical examination is given each child in the presence of its parents, the child being weighed and measured up to the standard furnished by the American Medical Association. The attention of the parents is called to any deviation from the normal and their interest aroused in seeking its cause and effect. A record is given each mother, stating, in the simplest possible terms, the condition of her child, with written suggestions for improving its hygiene (bathing, clothing, feeding, etc.). But one mother and child are admitted to the conference room at a time, approaching as nearly as possible the conditions of a private consultation.

No microscopic or laboratory work is done and, of course, no diagnosis or prescription given. In fact, the service of the conference is, in no sense, comparable to the care of the clinic. Most of the children are seen but once and the aim of the conference is:

1. To awaken parents to a keener sense of their responsibility.
2. To point out to them, tendencies which, if uncorrected, may become defects.
3. To convince them of their need of medical assistance.
4. To bring them in touch, when necessary, with such medical aid.

In some instances, the conference has been conducted by one physician, preferably a general diagnostician and one without local affiliations. In others, examinations are made by volunteer physicians from the local medical society, or, in one city, by the public school medical inspectors under the auspices of the local board of health, in conjunction with one outside physician. Each method has its advantages.

The advantages of the conference as conducted at the Exposition are:

1. The rights of the child are respected by subjecting him to a minimum of fear and excitement, as when examined by several doctors and nurses.
2. The quiet and privacy of having only the mother and child in the room, thus securing the friendly confidence of the child and more dependable data from the mother.
3. The avoidance of present and future friction, social or professional, due to efforts of overzealous patients of local examining physicians.
4. The more uniform standard of examinations when made by one physician rather than three or four. (Any one familiar with correcting students' papers will appreciate the value of this point.)
5. Greater statistical value of figures compiled from measurements of average rather than of exceptional children.
6. More constructive work of sending the mother home with simple practical written instructions of one general diagnostician, rather than the excited, confused impression she carries away from examinations by three or four physicians.

Of nearly 3,000 examinations made during the recent conference, more than 50 per cent were referred to their own physicians, when possible, or, in the case of visitors, to suitable sources of relief. And, during the latter half of the Exposition, numbers of children have returned to show marked benefit from such treatment.

The conference is reinforced by an exhibit consisting of panels, screens, models, electrical devices, slides, films, etc., for impressing upon the public the value and possibility of securing better results with our

children. Prenatal conditions, birth registration, mothers' pensions, and the importance of breast feeding are stressed. Also, demonstrations are given in the care and preparation of milk for the baby as well as the feeding of the older child.

The western child, like western vegetation, is of vigorous growth, escaping extremes of climate, of overcrowding, and of poverty as found in our large eastern cities. However, no section is free from the stigma of preventable infant mortality and the results accomplished in its reduction from 58 per cent to 2.8 per cent among San Francisco foundlings (the most difficult group in any community), is a practical demonstration of the value of sustained preventive work.

The following preliminary report will give some idea of the character and frequency of defects as found in 2,826 children examined at the recent Children's Health Conference. It may be stated that these children came from nearly every state in the Union, and from Alaska, the Philippines, Mexico, and South America; also, from many countries of Europe and Asia, although, by far, the majority were from California and adjoining states. For the most part, they represent towns of 5,000 or over and include children from 3 weeks to 15 years, the majority being between 2 and 6 years of age.

It may be added that no child suffering from an acute or contagious disease was admitted to the conference. In fact, with the exception of two groups of 50 and 150 each of "better babies" admitted for the purpose of demonstrating the scoring method, these 2,826 children represent the average healthy, vigorous child visiting the Exposition.

All measurements, barring those of the 200 "better babies" above mentioned, were made by one person. And it is believed that such a group affords a better basis for further study than the exceptional child applying for competitive honors.

Report of Children Examined at Children's Health Conference Held by United States Children's Bureau, Panama-Pacific Exposition, San Francisco, California, February 20 to December 4, 1915.

	Number	Per cent
<i>Children Examined—</i>		
Males	1,209	
Females	1,617	
Total	2,826	
<i>Ages (3 weeks to 15 years)—</i>		
Children under 6 years	1,725	61.04
Children over 6 years	1,007	35.63
Uncertain	94	3.33
Children under 2 years	732	25.54
Children over 2 years	1,992	70.49
Uncertain	109	3.97
<i>Birth Weight—</i>		
Males 8 pounds and over		55.6
Males under 8 pounds		40
Uncertain		4.4
Females 7 pounds and over		70.8
Females under 7 pounds		23.2
Uncertain		6

	Number	Per cent
<i>Breast Feeding—</i>		
Exclusively breast fed 2 months.....		52.82
Exclusively breast fed 4 months.....		26.09
Exclusively breast fed 6 months.....		14.56
Partly breast fed 6 months.....		38.51
Uncertain		6.53
<i>Artificial Foods, in Order of Frequency—</i>		
Cow's milk (certified). Eskay's.		
Condensed milk. Mellin's Food.		
Cow's milk (not certified). Imperial Granum.		
Malted milk. Dennos and Nestle's.		
<i>Previous Disease—</i>		
Measles		31.21
Whooping-cough		25.93
Respiratory diseases		23.30
Digestive		19.62
Other		18.54
<i>Defects—</i>		
Number of children examined.....	2,826	
Number of children defective.....	1,956	69.21
Number of defects.....	6,594	
<i>Defects, in Order of Frequency—</i>		
Enlarged glands		28.8
Bones		27.05
Teeth		23.17
Tonsils		22.11
Adenoids (on inspection).....		17.19
Fat		17.55
Muscle		17.26
General nutrition		16.07
Skin		15.55
Mouth		12.2
Nose		10.1
Exgenitals		6.44
Eyes		5.66
Lungs		4.10
Ears		4.6
Hair		2.7
Heart		2.37
Liver		1.27
Spleen		.35

WHOOPING COUGH.*

By WILLIAM PALMER LUCAS, M.D., Physician in Chief of the Children's Department
University of California Medical School.

More infants under one year died as a result of whooping-cough last year in California than from measles, scarlet fever and diphtheria. There were 85 deaths from diphtheria, scarlet fever and measles in children under one year, while from whooping-cough there were 172 deaths in infants of the same age. This great mortality, a total of 172 deaths in California in one year (10,000 a year in the United States) from this "trivial" disease, means that the public needs some facts about whooping-cough, what causes it, how it can be prevented and how it is best treated.

Whooping-cough is a very contagious disease which is almost indistinguishable from an ordinary acute cold during the first stages. However, instead of subsiding as a cold would in less than a week, if whooping-cough is present the symptoms increase and the cough, which at first is not different in character from any mild catarrhal cough, develops into a spasmodic cough or whoop (one recurring with more or less marked intensity periodically and in the intervals being free from cough). It is during this early catarrhal stage that whooping-cough is most contagious, for it is then that the causative organism, the Bordet-Gengou bacillus or *B. pertussis*, is found in great abundance in the secretions of the nose and throat. Throughout the whole of the paroxysmal stage the organism can be isolated, but it becomes increasingly difficult to do this, and the contagiousness also becomes less and less after the first two or three weeks.

Greatest Mortality in Infants.

The Bordet-Gengou bacillus affects the respiratory passages, denuding the mucous membrane of the cilia, which normally protects the mucous membranes from local irritation and which keeps up the movement of the normal secretions over the air passages, so keeping them evenly lubricated. The destruction of the cilia accounts for and explains the paroxysmal cough which is clinically so diagnostic.

The disease is spread by the organism being carried in the small droplets of mucus thrown out during the coughing or sneezing. The radius of direct infection is therefore small and a third person rarely carries the infection unless the fresh discharges from the nose and throat are passed on, by handkerchiefs, etc., or by fairly close contact, as in a room or a car, or one child playing with another having an actual case of whooping-cough.

One attack usually gives immunity which lasts absolutely for several years and relatively for longer, as the older a child is the less susceptible it becomes. The greatest mortality is in infants. It is estimated that 57 per cent of the fatalities from whooping-cough in the United States were in children under one year of age, 23 per cent in children between one and two years, 8 per cent in children of three years, 4 per cent in

*Read at the Infant Mortality Conference, held under the auspices of the California Pediatric Society (Northern Branch), in San Francisco, Nov. 29, 1915.

children of four years and 2.5 per cent in children between four and five years of age. It becomes a comparatively mild infection in children over five years.

Tuberculosis Often Follows.

Many deaths are undoubtedly indirectly due to whooping-cough, especially in infants. One of the most fatal complications of whooping-cough is broncho-pneumonia, which develops at a time when the child is much weakened by the whooping. Broncho-pneumonia in these cases runs a protracted course, often causing death weeks after the whooping has ceased. Other serious pulmonary conditions may develop, due directly to the whooping-cough or indirectly following a broncho-pneumonia, as empyema, bronchiectasis or emphysema. Tuberculosis is very apt to develop after an attack of whooping-cough if the infant has been exposed to tuberculous infection or has been drinking milk infected with bovine tuberculosis. More infants contract miliary tuberculosis (the most fatal form of tuberculosis) after whooping-cough and measles than after any of the other contagious diseases. All these complications undoubtedly raise the mortality of whooping-cough considerably higher than the figures we have given it.

At times convulsions occur which are very alarming and which, if not fatal, may cause rupture of some of the blood vessels of the brain, producing residual effects that retard the mental development of the child or cause spastic paralysis.

The best care of a case of pertussis is essential and nothing is more important than proper feeding, which in severe cases at least should be supervised by physicians, as complications are much more frequent in those who have not had proper feeding and fresh air. Vomiting of food during paroxysms is very common, but if feedings are repeated in the intervals between coughing spells the nutrition may be kept up fairly well. If weather and climate permit, it is best to have the child live out of doors. Abdominal binders, if properly applied, often tend toward the comfort of the child, but of course can not cure, as nothing applied externally can. Severe cases need careful medical attention for advice and direction how to prevent serious complications and to treat conditions as they arise. Too often medical advice is asked only after serious complications have arisen, where careful supervision might have prevented any complication.

Vaccine Treatment Used.

Specific therapy in the form of vaccine treatment has been gaining in usage during the last few years. This has been most widely carried out in New York, Philadelphia and Boston. The New York City Board of Health has established whooping-cough clinics in which only whooping-cough cases are treated and where cases which have been exposed by direct contact are given immunizing doses of vaccine. Their records, which are the most extensive published, show that from August, 1914, to July, 1915, they treated 1,397 cases in their whooping-cough clinics. In August, 1914, only 65 cases were treated with vaccine, but as the efficiency of the vaccine treatment was realized, the attendance at the clinics increased to 285 cases during July, 1915.

That patients preferred the vaccine treatment, or "needle" treatment, as they called it, to other treatment, is shown by the rapid increase of

patients preferring such treatment. This is very clearly brought out by the following table taken from the New York Monthly Bulletin of the Department of Health for November, 1915:

Percentage of Patients Preferring Vaccine Treatment.

	Per cent
August, 1914	18
September, 1914	24
October, 1914	20
November, 1914	40
December, 1914	38
January, 1915	45
February, 1915	51
March, 1915	60
April, 1915	73
May, 1915	75
June, 1915	80
July, 1915	94

This treatment has limited the paroxysmal stage to an average of three weeks and none of the prophylactic immunization cases (45) had contracted whooping-cough, while 4 out of 11 exposed cases, treated with antipyrine as controls, contracted whooping-cough and 8 out of 36 not treated have become infected.

The poor results that are reported by some are due to the fact that large enough doses have not been used or are not repeated frequently enough. The New York Board of Health recommends the following doses:

"The initial dose for children less than one year old is 250 million organisms. This dose is doubled every second day, *i. e.*, the subsequent doses are 500, 1,000, 2,000, 4,000, and if necessary 5,000 and even 10,000 millions. Children over a year receive an initial dose of 500 millions; adults receive one billion.

"For prophylaxis only three injections are given, 500, 1,000 and 2,000 millions, at three days' intervals from each other. Adults begin with a dose of one billion, and those weighing over 200 pounds may be given an initial prophylactic dose of two billion.

"The method of treatment consists in giving three to four subcutaneous injections (one every other day), after which for a period of three or four days the antipyrine mixture is administered. The whoop usually disappears between the third and fourth injection. Should it persist, another series of three injections may be given. The nonspecific cough is subsequently treated with cod liver oil emulsion, antipyrine or other appropriate medication."

Isolation Is Important.

Control of the disease is a difficult problem because by the time the whoop appears the most infectious period is over and those exposed are already infected. This fact should make mothers protect their young infants from any one who has an acute cold, especially any one who is coughing and sneezing. Children having the disease should be strictly isolated for at least a week after the onset of the whoop. They may go out of doors if properly attended, but should not be allowed to mingle with other children or to use books or toys in common. Infants should be removed if possible whenever a case develops in any other child, and should not be brought home until after the whoop has ceased; this precaution alone would save many babies a year.

Probably the chief reasons for the prevalence of this disease are the following given by the New York City Board of Health after a survey conducted during 1914 by the Bureau of Infectious Diseases:

“Ignorance of the general public regarding the menace of this disease.

“Insufficient attention, on the part of physicians and parents, to the isolation of the patient during the first two or three weeks.

“Lack of suitable dispensary facilities for patients ill with this disease.

“Neglect, in a large proportion of cases, to notify the health authorities.”

All these can be easily changed by more intelligent co-operation between physicians, families and boards of health. It should be remembered that public health is purchasable and that intelligence has the same value here as in any other field. As you go to your lawyer for legal advice, so go to your physician and public health officer for advice on all health questions. If all people did this, there would be fewer epidemics, fewer deaths and better public health. California boasts of her climate as a great health resort. California's health would be much better if the boards of health were followed more and their advice asked more often.

SEWAGE DISPOSAL FOR ISOLATED RESIDENCES.

By C. G. GILLESPIE, Director.

BUREAU OF SANITARY ENGINEERING.

In response to the great demand for specific instructions for practical methods of sewage disposal for isolated residences, the Bureau of Sanitary Engineering has prepared information and sketches on septic tanks specially designed for the purpose. In presenting this information, attention is called to the value of expert opinion and advice in specific instances because of peculiar soils, peculiar drainage, and peculiar dangers to wells and water supplies. This is especially important where soils are heavy or where sandy soils are apt to offer little protection to wells. These local conditions have much to do with the efficiency of septic tanks. The great danger of pollution of wells by sewage seepage through sandy soil, which in the case of gravel strata permits sewage pollution to travel thousands of feet, is coming to be reckoned with as serious. There was once a time when most wells were considered safe, but now most surface wells are dangerous and in certain sections even the deep wells are being polluted by the entrance of sewage into the gravel strata.

The standards of living in rural sections, which once tolerated the inconvenience of a hand-pumped water supply and the ill-smelling and unhealthy privy, are no longer adequate unless they demand the same conveniences that are demanded by people of towns and cities. As soon as water under pressure is available in the house, the way is open for many sanitary and labor-saving improvements—wash stands with hot and cold water, bath tub and shower baths, kitchen sinks, laundry tubs, slop sinks, water-flushed toilets, etc.

In this day when nearly every farmer owns an automobile, the cost of sanitary improvements is not a burden. The cost of plumbing systems in residences seldom exceeds from 7 to 10 per cent of the cost of the complete structure. Or, expressed somewhat more precisely, each fixture will cost about \$35.00 complete, with hot and cold water, vents and waste pipe to the outside of the building, considering the hot water boiler as a fixture.

With the introduction of such a system, however, follows at once the production of that waste called sewage, a mixture of a large percentage of water and a very small percentage of putrefying and foul decaying matter. Its disposal in a hygienic, odorless, simple and economic way must be faced by every householder who has no access to a community system of sewage collection.

For the purpose of disposal, sewage is universally recognized as a mixture of visible solids, decaying and otherwise, and organic or decomposing solids, dissolved in the sewage water. Methods of treatment aim at the separation of the solids from the fluid and disposal of each separately. Solids are removed by settling for 16 to 24 hours in basins of proper size and shape. Gradually a putrefying mass accumulates in the bottom of such settling tanks and must be disposed of by removal and burial every few years. In some towns concerns can be found who specialize in cesspool cleaning, doing the work inoffensively. When the task must fall on the householder, most people prefer to abandon the tank and build a new one.

The fluid leaving the tanks must be disposed of quickly. It is fairly clear but still contains as much dissolved organic matter as before, and if allowed to stand in pools or on water-logged soil, quickly causes extreme stench. It is likewise dangerous to health, since it carries all the water-carried disease germs of the original sewage, and the liquid must not be allowed to enter streams fit for drinking purposes directly, or streams which are dry in the summer. This leaves practically no other point of disposal for such small installations than the soil itself. Two methods of application are recognized—surface flooding and subsurface irrigation. This, in brief, is the status of isolated sewage disposal.

LEACHING CESSPOOL.

The simplicity and economy of the leaching cesspool often lead to its installation, because it attempts to combine in so simple a way the removal of solids and the disposal of the liquid effluent. Its gravest objection lies in the intense soil pollution produced in the vicinity, which often extends great distances, following seams of substrata or coarse gravel strata and sand, and in the frequency of overflow onto the ground, due to clogging. Many rural typhoid epidemics have been traced to infection of water supplies from just such causes. From an economic standpoint, cesspools clog more quickly than the more ramified subsurface irrigation system. Hence, they must be considered merely as a temporary expedient, to be advised only where conditions are especially favorable. In construction they are nothing more than a hole in the ground from 4 to 6 feet square and 6 to 30 feet deep, cased loosely with boards or brick laid without mortar. Brick cesspools are generally made circular for structural strength.

SEPTIC TANK.

The simple, honest function of a septic tank is to clarify or settle out the sewage solids which choke sand or soil or other media to which applied or to relieve some of the offensive appearance of streams. In it also takes place a certain amount of fermentation and working over by the smaller organisms of the sewage solids deposited therein. The septic tank is not a cure-all for sewage ills, as so many suppose. Any septic or settling tank, not to be disguised by modification of details, is nothing more than a clarifier. The claims as to liquefaction and non-

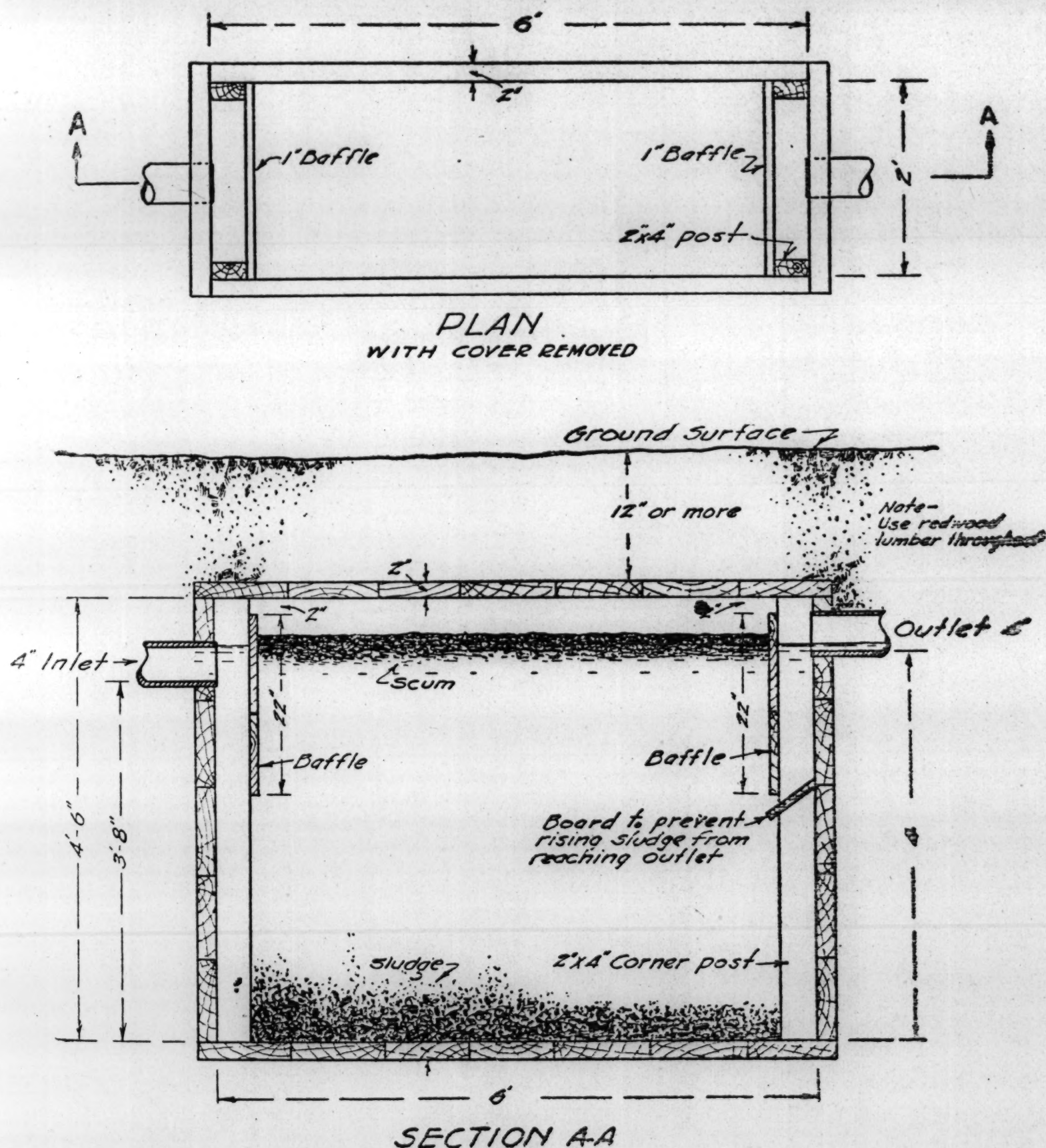


FIG. I. Redwood Residential Septic Tank.

accumulation of sludge have been but feebly realized. In time—from one to five or six years after installation—the deposit reaches the draw-off levels, when solids leave as fast as they enter. Nor is the effluent as harmless as claimed by advocates. It is intensely disease bearing, stale and foul-smelling, becoming more intense the longer the interval until final disposal is obtained. The “anacrobies” and “liquefaction” unfortunately do little of benefit to the sludge, except to convert it into an

erupting mass of decaying solids, the gases charging the whole supernatant fluid and effluent with their odorous properties.

Other types of preliminary clarifiers, producing a fresher effluent, or keeping separate the processes of digestion and sedimentation, or both, have now replaced the septic tank in installations for town use, but for

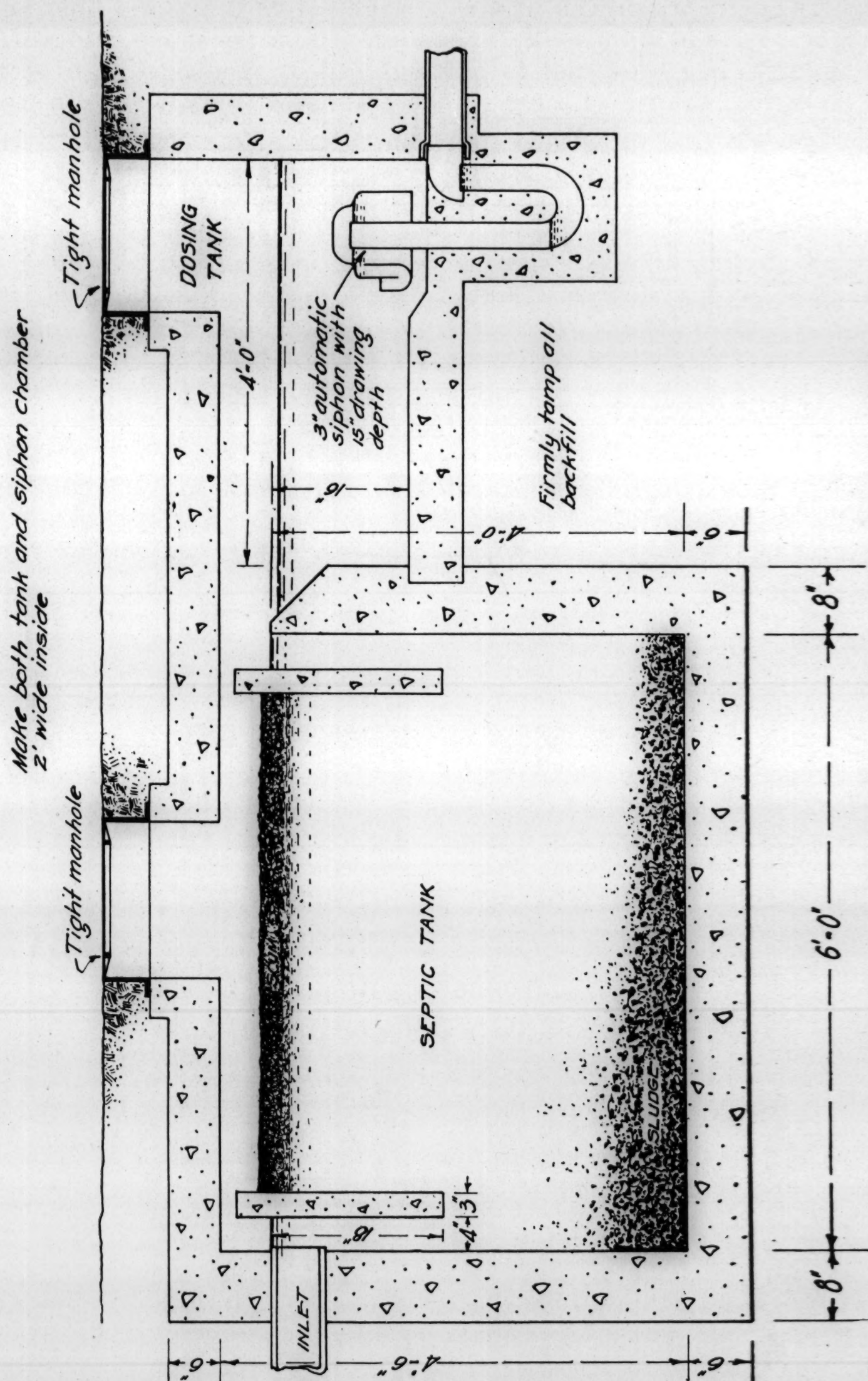


FIG. II. Concrete Residential Septic Tank and Dosing Tank.

residential installations, on account of their lack of simplicity and need of frequent attention, they are not at the present day adapted. With all its limitations, the simplicity of construction and the fact that there is no opportunity for much improvement in operation make the septic

tank suited as the first step in handling the sewage of the isolated residence where so little attention is to be expected and cost is a big item.

The important features of a septic tank are location, capacity, depth, ratio of width to length, scum baffling and cover. For residential use for a family of ten or less the size should be sufficient to hold approximately one day's flow of sewage. For these small installations this storage is provided and the other features shown in the sketches (see Figs. I and II).

Fig. I shows a tank of redwood intended to supply the demand for a cheap installation. It is intended that the effluent is to be disposed of onto land or into loose soil. Under most conditions of soil, a dosing tank is needed to give intermittent flow to subsurface tile system, as explained further on. Fig. II illustrates a septic tank in connection with a dosing tank. Baffling to serve as diffusers of flow and to hold back the surface scum should be provided, as shown. A sludge drain from the bottom is possible in certain topography and is desired. In order to prevent the escape of odors and prevent accident, the cover of wood, or wood and earth, is advisable.

Gutter and roof water should be excluded.

The tank must be located judiciously, so that prevailing winds will carry odors in a direction away from dwellings and so that wells and water courses will not be polluted by the effluent. Under ordinary conditions, for safety 200 feet should separate the tank and the nearest well, water course, homes or highway.

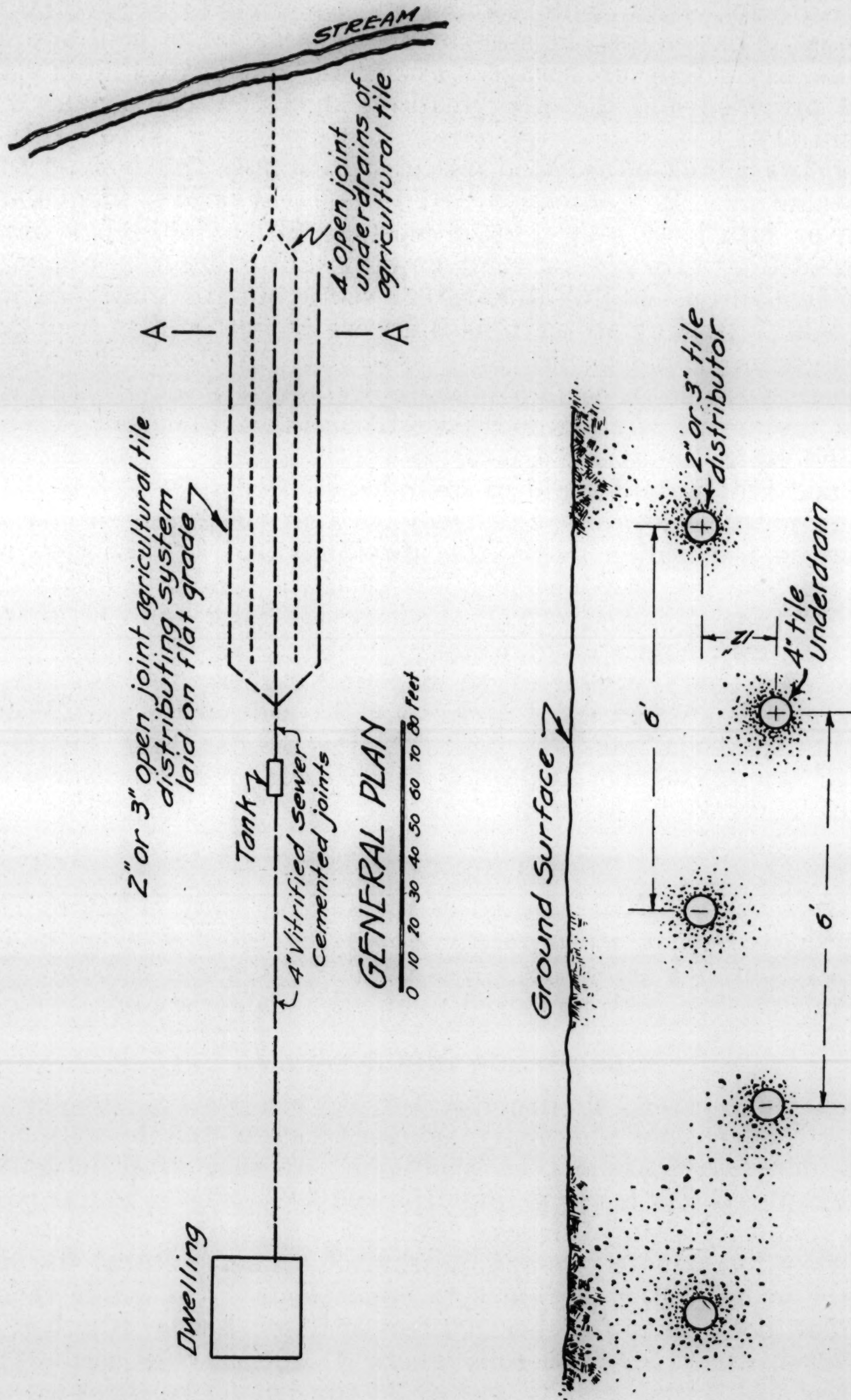
The cost will vary considerably, depending upon the amount of labor and material to be picked up around the ordinary farm. Where all labor and material must be paid for, the wooden tank should be constructed for \$25.00, not including the cement-joint, vitrified sewer line leading from the house to the tank.

BROAD IRRIGATION.

Broad irrigation is often selected as the simplest way of taking care of the sewage leaving a septic tank. Spreading the flow over the soil continuously, however, clogs its pores quickly. Certain nuisance follows and this method is to be looked upon as a temporary one.

SUBSURFACE IRRIGATION.

The favorite method of disposal for settled wastes, because of economy, efficiency and simplicity in construction and operation, is that by underground seepage, as is obtained by subsurface irrigation methods. Reference is made to Fig. III and IV. The essential parts of such a system of sewage disposal are: a dosing tank (not needed in sandy or very loamy soils); a ramification of 2" agricultural tile laid 12 inches or so below the surface with open joints. The grade should be nearly flat, not over .5 foot per 100 feet of line. Larger tile than 2" is not advised, except in loose soils where 3" tile may be used. One hundred feet of 2" tile, or sixty feet of 3" tile, should be provided per person in the household. Often the soil is not as receptive of sewage as is anticipated, or tends to clog, and it is well to locate the ends of the line so that extensions may be made as desired in the future.



DETAIL OF TYPICAL SECTION - A-A

FIG. III. Plan and Cross-section of Subsurface Irrigation System.

In heavy soils, a sub-tile drain should be provided. It is absolutely imperative that the soil be well drained. Where soils are water-logged, this method will be a failure and in heavy soils frequent digging up and changing of lines will be necessary.

DOSING TANK.

The success of subsurface methods of disposal depends on the ability of the soil to "breathe." Improved intermittency of sewage application is especially necessary for heavy soils. In a measure, this is afforded by a certain lack of regularity and stoppage of flow, especially during the night. Where natural fall permits, artificial intermittency is much more satisfactory. It is best secured by a siphon-discharged dosing tank. The tank should be designed to hold about 15 gallons per person, with a water depth of 16 to 18 inches, and provided with a siphon which will automatically disgorge the contents quickly into a subsurface distributing system, laid with its top level with the inside bottom of the tank, when the sewage accumulates to a certain high water mark in a dosing tank. This sudden discharge should occur two or three times a day. The ordinary design of septic tank with dosing tank is shown in Fig. II.

It often happens that the required fall is not available. In such cases an alternative solution for giving the soil rest periods is the providing of duplicate subsurface tile lines, changing the sewage from one to the other every day or so, by hand or by installing a float operated motor-driven pump, drawing from a pit similar to the dosing tank.

Care must be taken in selecting a discharging siphon to get one which will be automatic and certain. Siphons with moving parts get out of order very quickly and are not to be recommended. While siphons are presumably automatic, they require some attention from time to time, particularly to see that the small pipe lines are clean and open. Covering over the dosing tank should be removable.

A dosing tank is a fairly permanent structure and for stability of the siphon as well, it should be made of concrete, differing in this respect from the small septic tank recommended to be made of wood.

The dosing tank shown, complete with septic tank, will cost about \$75. Agricultural tile for the distributing system will cost, laid, about 3 cents per foot.

An entire system of home waste disposal should be built for about \$100 and when the labor need not be especially hired and materials are the only expense, \$40 or \$50 will cover the cost.

These designs are intended for a single household. Summer resorts, hotels, institutions and schools can secure, on request to the State Board of Health, other pamphlets relating especially to the larger problems. In these latter cases, expert advice is to be highly recommended in each individual instance, so that full account may be taken of peculiar local conditions. This Bureau is loath to attempt to leave the handling of even the small household disposal problems and more especially such larger problems to persons whose only guidance is these pamphlets and does so only because in the great majority of cases it can not hope to give parties the benefit of field advice except in the course of regular inspections in the vicinity.

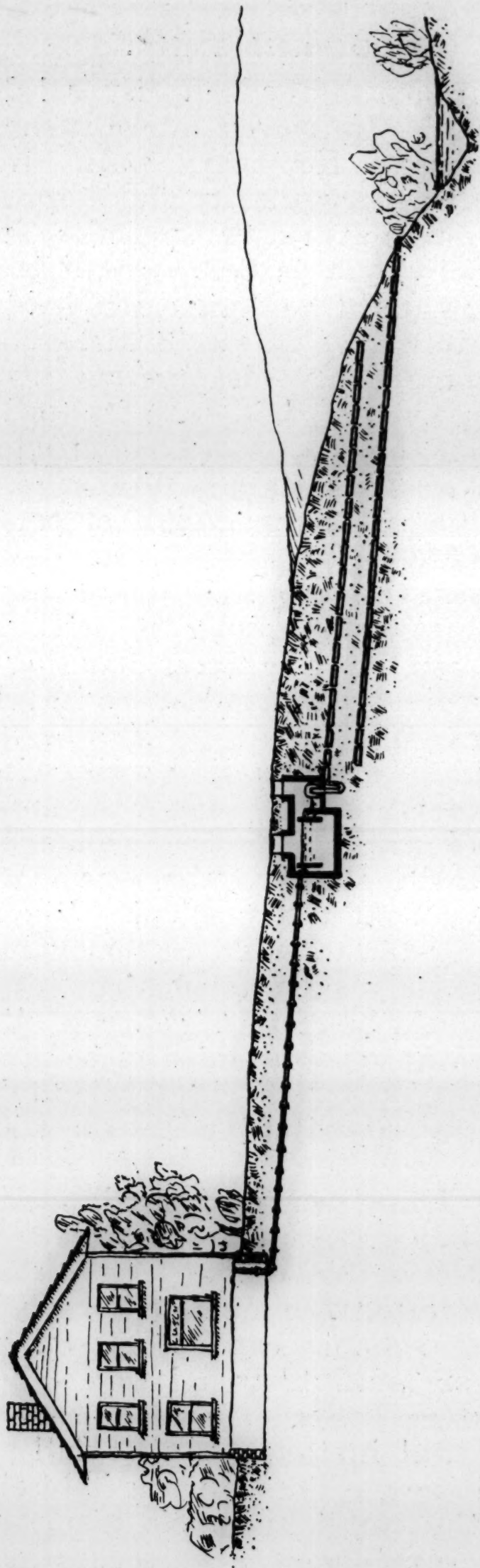


FIG. IV. Typical Sewage Disposal System by Subsurface Irrigation.

THE FEBRUARY MEETING OF THE STATE BOARD OF HEALTH.

The State Board of Health met in Sacramento on February 5th. There were present: Dr. George E. Ebricht, president; Dr. F. F. Gundrum, vice president; Dr. Robert A. Peers, Dr. Adelaide Brown and Dr. Edward G. Glaser.

Specimens Improperly Packed.

It having been called to the attention of the Board that many specimens sent by physicians to the laboratories are improperly packed and in direct violation of the postal regulations, the Board referred the matter to the attorney, who will frame a letter to be sent to all physicians in the State, warning them against infringement of the United States postal laws in this matter, and calling attention to the great danger of the transfer of infection.

Sewage Disposal Permit Granted to Reedley.

In accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, a permit was granted to the city of Reedley to discharge sewage into the Kings River, provided:

1. That a modern sprinkling filter be constructed as outlined in the report.
2. That at a river stage of three feet or less (flow not less than 10,000 feet) no sewage be permitted to enter the river direct without additional treatment to completely sterilize it.

Sewage Disposal Permit Granted to Riverside.

A permit was granted to the city of Riverside, in accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, to discharge its sewage on to a tract of land, approximately 500 acres, in the vicinity of the confluence of the old and new channels of the Santa Ana River.

Sewage Disposal Permit Granted to the Cities of El Centro and Imperial.

In accordance with the recommendations of the Director of the Bureau of Sanitary Engineering, a permit was granted to the cities of El Centro and Imperial to discharge clarified sewage into New River.

Subsidy Granted Los Angeles County.

In accordance with the recommendations of the Director of the Bureau of Tuberculosis, the new thirty-bed pavilion at Los Angeles, having been inspected and found to fulfill the requirements of the Bureau of Tuberculosis of the State Board of Health, was placed on the eligible list to receive the subsidy.

Subsidy Granted San Joaquin County.

In accordance with the recommendations of the Director of the Bureau of Tuberculosis, the San Joaquin County Hospital, having been inspected and found to fulfill the requirements of the Bureau of Tuberculosis of the State Board of Health, was also placed on the eligible list to receive the subsidy.

Hospitals Reaccredited.

In accordance with the recommendation of the Director of the Bureau of Registration of Nurses, the following hospitals, having been inspected and found to be continuing to meet the requirements of this Board, were reaccredited for one year from date, February 5, 1916: University of California Hospital, San Francisco; St. Joseph's Hospital, San Diego; Cottage Hospital, Santa Barbara.

Hospitals Accredited.

In accordance with the recommendations of the Director of the Bureau of Registration of Nurses, the Children's Hospital, Los Angeles, having complied with the special recommendation of the Board of December 8, 1915, arranging for the proper affiliation with another accredited school, and now meeting the requirements of the Board, was accredited for one year from date, February 5, 1916.

Certificates as Registered Nurse Granted.

In accordance with the recommendation of the Director of the Bureau of Registration of Nurses, the following applicants, having met the requirements of the law under chapter 319, section 8, and the rules and regulations of this Board, were granted certificates as registered nurses: Viggo M. Toppenbert, number 5158; Pearl Hammons, number 5252.

Report on Rabies Conference.

Dr. F. F. Gundrum, vice president, presented a summary of his report of the conference on rabies, held at Salt Lake City, February 1, 1916, as follows:

"The vice president left Sacramento for Salt Lake City to attend the Surgeon General's Conference at 8 p. m., Tuesday, February 1st. The following organizations were represented at the Conference: United States Public Health Service, Forestry Service, Biological Survey, Bureau of Animal Industry, the District of Columbia, Kansas, Montana, Wyoming, Idaho, Utah, Washington, Oregon, Nevada, and California. Each organization had one vote in the conference.

Dr. Kerr appointed a committee on resolutions consisting of Dr. Woodward, District of Columbia, chairman; Dr. Fricks, United States Public Health Service; Dr. T. B. Beatty, Utah; Dr. Tuttle, Washington; and Dr. F. F. Gundrum, California.

Rabies was first discussed and it developed that this disease is quite prevalent in California, Washington, Oregon and Kansas. Dr. Fisher, chief of the Biological Survey, announced that a bill appropriating \$75,000 had been passed by both senate and house as an emergency fund for the Biological Survey in the extermination of coyotes in the west.

Other matters considered were Rocky Mountain fever, the question of indigent tuberculous who have migrated from one state to another, and the discussion of the sanitation of railway coaches, Pullman cars in particular."

Foods and Drugs.

The Board then considered violations of the food and drug laws, and held the hearings set for eighty-five alleged violations. The disposition of each case was determined by a vote of the Board.

WILBUR A. SAWYER, M.D.

Secretary.

REPORT OF THE BUREAU OF ADMINISTRATION FOR JANUARY, 1916.

WILBUR A. SAWYER, M.D., Director.

Public Health Activities of Members of the Board.

Dr. George E. Ebright, President of the Board, on January 13th, addressed the San Francisco Civic Center on "Public Health Problems in California."

Dr. Adelaide Brown, member of the Board, on January 6th, spoke before the San Francisco Center of the California Civic League. On January 7th Dr. Brown gave an address before the Fortnightly Club of San Francisco, and on January 24th she addressed the Berkeley Civic Center.

Dr. Robert A. Peers, member of the Board, on January 11th, attended a conference on rabies, held by the County Health Officers of Nevada, at Winnemucca.

SANITARY INSTRUCTIONS.

EDWARD T. ROSS, State Sanitary Inspector.

The entire month was spent in Modoc and Lassen counties, supervising the campaign which is being waged against rabies.

The work is progressing as rapidly as can be expected under the present weather conditions.

During the month several hundred premises were inspected for the purpose of ascertaining the number of loose and unlicensed dogs which are being kept, also in giving information regarding the quarantine regulations and in collecting data regarding the prevalence of rabies, loss of stock, etc.

In addition to the inspection of premises, several thousands of pieces of poisoned bait were placed, resulting in the destruction of a large number of coyotes.

The federal and state hunters also succeeded in destroying several hundred stray dogs and cats.

The following is a summary of operations in Modoc County from December 1, 1915, to January 3, 1916, and in Lassen County from January 7 to January 29, 1916:

Summary of Operations in Modoc County from December 1, 1915, to January 3, 1916, and in Lassen County from January 7, to January 29, 1916.

The following animals suspected of having rabies were killed or died:

Coyotes	18
Dogs	17
Hogs	2
Horses	3
Cats (domestic)	1
Bob cats	1
Cattle	214
Calves	5

The following animals have been trapped, killed or found dead by the federal or state hunters. Some of the deaths of domestic stock found dead were undoubtedly due to rabies:

Coyotes, poisoned, trapped or shot by hunters-----	316
Coyotes brought in by outsiders for bounty-----	1,100
Dogs shot by hunters-----	260
Cats shot by hunters-----	86
Hogs found dead-----	5
Cattle found dead-----	150
Horses found dead-----	4
Cats (domestic) found dead-----	9
Rabbits shot for bait-----	256

The following animals' brains were sent to the state laboratory for examination and were found positive for rabies:

Coyotes -----	16
Calves -----	7
Dogs -----	5
Cows -----	2
Horse -----	1
Steer -----	1
Bob cat -----	1

Other operations performed:

Premises inspected -----	1,325
Dog license applications issued-----	267
Dogs found without license-----	257
Poison issued (ounces) -----	410
Empty capsules for poison issued-----	41,525
Filled capsules issued -----	20,225
Traps placed -----	640
Poison bait placed -----	7,599
Notices posted—quarantine -----	215
Notices posted—warning -----	129
Notices posted—trapping and poisoning -----	105
Miscellaneous letters; instructions, etc. -----	315

This summary is incomplete, due to the fact that some of the reports have not been received. No reports or information of any sort have been received from Modoc County since January 3d.

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Statistician.

During January there were twenty-one cases of smallpox reported. Five of these were in Colusa County, but there was no outbreak of any importance at any time during the month. Ten cases of epidemic cerebrospinal meningitis were reported. These were scattered throughout seven counties of the State. Poliomyelitis shows a decrease, only four cases, all of which were in Los Angeles County, having been reported during January. An unusually large number of cases of gonococcus infection and syphilis were reported during January. This is due to the fact that a number of cases covering a period of several months were reported from some of the larger clinics. Measles continues to decline, there having been but two hundred and forty-seven cases reported. Scarlet fever and diphtheria remain stationary.

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR JANUARY, 1916.

By JAMES G. CUMMING, M.D., Director.

An Investigation of the Typhoid Fever Situation at Redding.

From the investigation by this bureau of the typhoid fever situation at Redding, it was plainly evident that no one milk supply was responsible for the outbreak. Further, it is doubtful if milk were responsible for any of the cases. Ice cream could not be responsible for all, since several of those afflicted had not eaten this food since summer. In fact, so far as could be learned, there was no food supply common to all of these cases. They were fairly well separated, and the investigation showed there was no common well water supply. The city water supply is furnished by the Northern California Power Company and this supply was in all probability responsible for the present outbreak of typhoid fever. The macroscopic appearance of the water alone was sufficient to condemn it. Especially is this so since the supply is obtained from the Sacramento River, into which flows the sewage of some three thousand individuals. The upstream towns make no attempt at sewage purification and none of these communities have adequate sewage systems. The largest sewage system above Redding supplies only 150 people of the entire population of about 3,000 which inhabit this watershed.

The wet and dry seasons are big factors in determining the degree of pollution of the Sacramento River. For instance, it was found that at Kennett there was, on June 16, 1915, 8.04 inches rainfall. During the summer and fall months, there was no more than 1 inch rainfall on one single day, and on December 11th there was 4.98 inches rainfall in a few hours. Owing to the inadequate sewage systems in most of these small towns, there is, during the dry season, a storing-up of sewage, and with the onset of the rainy season, which may be ushered in, as this year, with a strong, heavy downpour, the stored-up sewage contaminates the Sacramento River and endangers the lives of those who use its water raw. It may be pointed out that the Sacramento River, in the canyon district, is a rapidly flowing stream, and that there is no opportunity for purification by sedimentation. Furthermore, the water company supplying Redding does not take advantage of a day's sedimentation (which is possible) in the reservoir. In other words, the outflow of the flume is directly over the intake of the city mains. The reservoir has a capacity of about thirty hours' supply, and is said to be 32 feet deep. The intake of the city main is situated, at the deepest point, 4 feet from the bottom, directly under the outfall from the flume. It will be noted that the opportunity of improving the water supply by the use of a proper arrangement of the outfall and inlet at the reservoir has not been taken advantage of.

The report of the analysis of the Redding water shows that this water is polluted at the present time, and there is no reason to believe that this pollution is not permanent. It was pointed out to the Northern California Power Company, to the local Board of Health, and to the Board of Trustees, that the water supply should be rendered safe for

domestic use. It was advised that a chlorination system be installed at once, and that this be supplemented with sedimentation at the reservoir by rearranging the outfall and intake, and that eventually a rough filter be installed. The expense of installation of a chlorination system for this city would be about \$600, and with the additional expense of only about $1\frac{1}{2}$ cents per capita per year for chlorination of the city supply there is presented a system of purification which is not only cheap but efficient.

Malaria.

A campaign against malaria in Redding was inaugurated. Several informal talks were given on the mosquito menace and its relationship to malaria, before public gatherings, and it was pointed out that aside from health, the prevalence of malaria meant to the community a big economic loss. As far as the campaign has gone, it may be stated that both the doctors and the public were in hearty accord with the movement. The charts of six of the nine cases of typhoid fever strongly indicate the co-existence of malaria and typhoid infection. The onset of the illness simulates malaria—a flaring up of latent malaria—and this is followed by the typical febrile chart of typhoid fever.

Blood specimens were drawn from 117 individuals for the purpose of determining the endemic index for malaria. Of these specimens 72 per cent were taken from adults, and these were not selected but taken at random. Only one of the specimens was found to be positive for malaria, estivo-autumnal type having been found.

Although the results of this investigation fall short of expectations as to the number of malarial carriers, the following points must be borne in mind:

First—That most of these specimens were from adults.

Second—That this is the season of least prevalence.

Third—That it is impossible to identify all carriers even when the centrifugating method is used.

Fourth—That the single carrier may be responsible for the beginning of an endless chain of infections as soon as the mosquito season opens.

The following combination of report and circular letter was used in notifying each individual as to the result of the examination:

BERKELEY, CALIFORNIA, January 21, 1916.

MR. -----

Redding, Cal.

DEAR SIR: Although the examination of your blood shows no malarial parasites at the present time, nevertheless you are exposed to this disease as long as the malarial mosquito exists in your city. You should become familiar with the following points:

1. As long as the malarial mosquito exists in your community, you are exposed to the infection of malaria.

2. If you are a healthy individual and you are bitten by a mosquito which has already bitten a person with malaria, you may become infected with the disease.

3. The malarial mosquito bites chiefly at night. So, if you are free from the disease and are protected in an effectually screened house during the time from sun-down to sunrise, there is slight danger of contracting the disease.

4. The malarial mosquito breeds chiefly in ponds, puddles and swamps. These should be either drained or coal-oil should be poured on the surface at intervals of not more than seven days. No body of water is too small for the breeding of mosquitoes. They breed in puddles by the roadside; in the water that accumulates in furrows in gardens and lawns; in street gutters; in holes in rocks; and, in fact, anywhere that as much as half a pint of water is allowed to stand.

5. If you are a malarial carrier—chronic malaria—you should report to your physician and receive a thorough course of quinine injections.

By assisting in the campaign for the abatement of the mosquito menace, you protect not only yourself but your neighbor and do your duty as a progressive citizen of the community. It is up to you as a citizen to make Redding the healthiest community in the Sacramento Valley.

Very truly,

JGC-MB

(Signed) J. G. CUMMING, Director.
Bureau of Communicable Diseases.

Redding does not stand alone in the prevalence of this preventable disease. In fact, the distribution of the disease throughout the valleys of the Sacramento and San Joaquin calls for educational and preventive work by the health officials, and the intelligent co-operation of both the urban and rural populations.

Before leaving Redding after this investigation, the following recommendations were made to the local Board of Health:

1. That the local Board of Health and the Northern California Power Company, in co-operation with the State Board of Health, work for the improvement of the Redding water supply. This water supply is found to be polluted at the present time. In view of this pollution, which may be temporary or permanent, it is advised that a purification system be installed which will render the supply safe at all times. Further, that a warning to boil all water used for domestic purposes should be published in the local paper until the supply be proved safe.

2. That the local Board of Health keep in mind the necessity of the pasteurization of milk in the fight against typhoid fever, tuberculosis, and infantile diseases.

3. That the local Board of Health take steps to have all garbage and refuse properly disposed of, and that this disposal be under municipal regulations.

4. That the local Board of Health continue its campaign against the malaria mosquito menace. It is advised that the local Board of Health recommend the appointment of a properly qualified individual by the City Board of Trustees, who shall be vested with police power, and whose duty it shall be to abate all conditions which tend to the breeding of mosquitoes.

5. That Professor Herms of Berkeley be invited here for the purpose of giving a series of public lectures and lantern slides on the breeding places, development, habits, and the method of transmitting malaria by the mosquito. These lectures to be fully advertised so that the whole public may attend, and thereby profit to the extreme in an intelligent campaign against a disease—malaria—which has meant to this community an economic loss of at least \$100,000 per year.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory during the Month of January, 1916.

Condition suspected	Positive	Negative	Inconclusive	Total
Main Laboratory at Berkeley—				
Anthrax -----	1	4	-----	5
Diphtheria (diagnosis) -----	26	58	11	95
Diphtheria (release) -----	106	78	10	194
Diphtheria (school investigations)*-----	42	88	24	154
Gonococcus infection -----	19	29	-----	48
Hookworm -----	1	4	-----	5
Malaria -----	-----	3	-----	3
Rabies -----	17	7	-----	24
Syphilis (Wassermann test)-----	13	84	4	101
Tuberculosis (sputum examinations)---	8	10	-----	18
Typhoid (Widal test)-----	6	25	3	34
Typhoid (excreta) -----	-----	1	-----	1
Miscellaneous -----	2	1	-----	3
				685
Northern Branch at Sacramento—				
Diphtheria (diagnosis) -----	5	21	1	27
Diphtheria (release) -----	16	25	-----	41
Malaria -----	1	1	-----	2
Tuberculosis (sputum examinations)---	2	12	-----	14
Typhoid (Widal test)-----	2	9	2	13
				97
San Joaquin Valley Branch at Fresno—				
Diphtheria (diagnosis) -----	8	27	3	38
Diphtheria (release) -----	5	36	1	42
Gonococcus infection -----	-----	1	-----	1
Malaria -----	-----	2	-----	2
Tuberculosis (sputum examinations)---	-----	7	-----	7
Typhoid (Widal test)-----	-----	4	-----	4
				94
Southern Branch at Los Angeles—				
Diphtheria (diagnosis) -----	22	57	2	81
Diphtheria (release) -----	31	52	1	84
Gonococcus infection -----	1	-----	-----	1
Malaria -----	-----	1	-----	1
Tuberculosis (sputum examinations)---	7	12	-----	19
Typhoid (Widal test)-----	2	6	1	9
				195
Total number of examinations-----				1,071

*Cultures taken from school children in Albany (57) and in San Anselmo (97).

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory during the Month of January, 1916.

	Treatment commenced	Treatment completed
Main Laboratory at Berkeley-----	2	0
Northern Branch at Sacramento-----	0	0
San Joaquin Valley Branch at Fresno-----	0	0
Southern Branch at Los Angeles-----	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist-----	0	0
Laboratory of San Francisco Board of Health, by depu- tized bacteriologist-----	0	1
Laboratory of Los Angeles Board of Health, by deputized bacteriologist-----	0	0
Laboratory of San Diego City Board of Health, by depu- tized bacteriologist-----	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist-----	0	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist-----	0	0
Totals -----	2	1

Vaccine for the Prevention of Typhoid Fever issued by the State Hygienic Laboratory during the month of January, 1916.

Number of physicians to whom vaccine was sent-----	10
Number of complete treatments sent-----	175

Public Health Instruction.

Participation in Instruction in Public Health during January, 1916.

Main Laboratory at Berkeley—	
Bacteriological instruction outfits sent out-----	0
Bacteriological instruction outfits in use-----	23

Division of Epidemiological Investigations.

Epidemiological Investigations and other Special Investigations during January, 1916.

Main Laboratory at Berkeley—	
Special investigations by the Director-----	2
An investigation of the typhoid fever situation at Redding.	
An investigation of a suspected case of smallpox at Stockton.	
Special investigations by the Assistant Director and Bacteriologist----	1
Investigation of malaria in California.	

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Births, Deaths and Marriages for December.*

State Totals and Annual Rates.—The following table shows for California as a whole, the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,854,727 for California in 1915, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population, for Current and Preceding Months, for California: December.

Month	Monthly total		Annual rate per 1,000 population 1915
	1915	1914	
December—			
Births -----	4,362	4,233	17.7
Deaths -----	3,993	3,797	16.5
Marriages -----	2,667	2,698	11.0
November—			
Births -----	4,091	3,587	17.4
Deaths -----	3,448	3,233	14.7
Marriages -----	3,050	2,715	13.0

The birth and death totals for December were considered greater in 1915 than in 1914, while the marriage total for the month was not far from the same each year.

The birth registration exceeded the death total by 369, or 9.2 per cent, in December.

Length of Residence.—As to deaths, it may be noted that for the 3,993 decedents in December the length of residence in California was as follows: Under 1 year, 150, or 3.8 per cent; 1 to 9 years, 731, or 18.3 per cent; 10 years and over, 1,804, or 45.2 per cent; life, 935, or 23.4 per cent; and unknown, 373, or 9.3 per cent.

County Marriage Totals.—The counties showing the highest marriage totals for the month were as follows: San Francisco, 614; Los Angeles, 521; Alameda, 222; Orange, 125; Fresno, 113; San Diego, 86; San Joaquin, 81; Sacramento, 76; Santa Clara, 76; San Bernardino, 60; Marin, 50; Riverside, 41; and Sonoma, 39. The aggregate for San Francisco and other bay counties was 937 against 646 for Los Angeles and Orange counties together.

*NOTE.—The present report is for the month preceding, but one. This order must be followed hereafter, because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

County Birth and Death Totals.—Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles -----	1,064	984	Tulare -----	85	56
San Francisco -----	633	710	Kern -----	84	50
Alameda -----	436	375	Contra Costa -----	82	49
Fresno -----	201	116	Santa Barbara -----	75	37
Santa Clara -----	155	164	San Bernardino -----	70	143
San Diego -----	154	153	Stanislaus -----	69	41
Sacramento -----	110	115	Riverside -----	68	53
San Joaquin -----	90	113	Orange -----	57	51

City Birth and Death Totals.—Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
San Francisco -----	633	710	Pasadena -----	63	61
Los Angeles -----	606	555	Stockton -----	49	72
Oakland -----	272	217	Long Beach -----	43	45
San Diego -----	107	110	Alameda -----	41	32
Sacramento -----	95	103	Santa Barbara -----	40	22
Berkeley -----	86	48	Riverside -----	35	21
Fresno -----	76	42	Bakersfield -----	33	29
San Jose -----	66	51	Eureka -----	26	19

Cause of Death.—The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: December.

Cause of death	Deaths: December	Proportion per 1,000	
		December	November
All causes -----	3,993	1,000.0	1,000.0
Typhoid fever -----	22	5.5	6.1
Malarial fever -----	4	1.0	-----
Measles -----	1	0.2	0.3
Scarlet fever -----	7	1.7	1.2
Whooping-cough -----	6	1.5	2.3
Diphtheria and croup -----	19	4.8	11.3
Influenza -----	45	11.3	5.8
Other epidemic diseases -----	11	2.8	2.6
Tuberculosis of lungs -----	440	110.2	109.0
Tuberculosis of other organs -----	55	13.8	16.2
Cancer -----	263	65.9	67.3
Other general diseases -----	190	47.6	49.0
Meningitis -----	21	5.3	5.8
Other diseases of nervous system -----	286	71.6	67.0
Diseases of circulatory system -----	821	205.6	200.4
Pneumonia and broncho-pneumonia -----	552	138.2	99.8
Other diseases of respiratory system -----	84	21.0	20.9
Diarrhea and enteritis, under 2 years -----	47	11.8	14.8
Diarrhea and enteritis, 2 years and over -----	50	12.5	13.9
Other diseases of digestive system -----	147	36.8	47.0
Bright's disease and nephritis -----	280	70.1	74.0
Childbirth -----	28	7.0	7.0
Diseases of early infancy -----	151	37.8	37.1
Suicide -----	62	15.5	26.7
Other violence -----	253	63.4	77.4
All other causes -----	148	37.1	37.1

In December there were 821 deaths, or 20.6 per cent of all, from diseases of the circulatory system; 636, or 15.9 per cent, from pneumonia and other diseases of the respiratory system; and 495, or 12.4 per cent, from various forms of tuberculosis. Heart disease, as well as pneumonia, surpassed tuberculosis in the death total for December.

Other notable causes of death in December were: Violence, 315; diseases of the nervous system, 307; Bright's disease and nephritis, 280; cancer, 263; diseases of digestive system and epidemic diseases, 115.

The deaths from epidemic diseases were as follows: Influenza, 45; typhoid fever, 22; diphtheria and croup, 19; scarlet fever, 7; whooping-cough, 6; and all other epidemic diseases, 16.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Influenza		Typhoid fever		Diphtheria and croup	
Alameda	3	Alameda	3	Alameda	1
Butte	1	Amador	1	Fresno	4
Calaveras	1	Calaveras	1	Glenn	1
Los Angeles	12	Contra Costa	1	Los Angeles	3
Mendocino	1	Fresno	1	San Diego	3
Monterey	1	Glenn	1	San Francisco	6
Napa	1	Humboldt	1	Tulare	1
Orange	1	Kern	1	Total	19
Riverside	1	Kings	1		
San Bernardino	2	Riverside	2		
San Diego	6	San Francisco	3		
San Luis Obispo	2	San Joaquin	2		
Santa Barbara	1	San Luis Obispo	1		
Santa Clara	2	Siskiyou	1		
Santa Cruz	1	Stanislaus	1		
Siskiyou	2	Tulare	1		
Stanislaus	3	Total	22		
Tulare	2				
Tuolumne	1				
Ventura	1				
Total	45				

Geographic Divisions.—The following table presents data for geographic divisions, including the metropolitan area, or San Francisco and the other bay counties (Alameda, Contra Costa, Marin and San Mateo), in comparison with the rural counties of northern and central California:

Deaths from Main Classes of Diseases, for Geographic Divisions: December.

Geographic division	Deaths: December									
	All causes	Epidemic diseases	Tuberculosis (all forms)	Cancer	Diseases of nervous system	Diseases of circulatory system	Diseases of respiratory system	Diseases of digestive system	Bright's disease and nephritis	Violence
The State	3,993	115	495	263	307	821	636	244	280	315
Northern California	402	12	35	22	38	90	75	21	26	35
Coast counties	190	4	15	9	24	41	31	14	15	14
Interior counties	212	8	20	13	14	49	44	7	11	21
Central California	2,110	60	245	149	157	441	339	135	141	163
San Francisco	710	15	89	57	39	157	105	50	48	62
Other bay counties	479	13	57	42	38	109	79	24	24	30
Coast counties	265	7	16	16	33	69	44	16	14	20
Interior counties	656	25	83	34	47	106	111	45	55	51
Southern California	1,481	43	215	92	112	290	222	88	113	117
Los Angeles	984	22	144	74	66	212	133	57	87	55
Other counties	497	21	71	18	46	78	89	31	26	62
Northern and Central California	2,512	72	280	171	195	531	414	156	167	198
Metropolitan area	1,189	28	146	99	77	266	184	74	72	92
Rural counties	1,323	44	134	72	118	265	230	82	95	106

Sex, Race and Nativity.—The proportion of the sexes among the 3,993 decedents in December was: Male, 2,411, or 60.4 per cent; and female, 1,582, or 39.6 per cent.

The race distribution of decedents was: White, 3,806, or 95.3 per cent of all; Chinese, 75; negro, 51; Japanese, 50; and Indian, 11.

The 3,806 white decedents were classified by nativity as follows: California, 890, or 23.4 per cent; other states, 1,562, or 41.0 per cent; foreign countries, 1,254, or 33.0 per cent; and unknown, 100, or 2.6 per cent.

Sex and Age Periods.—The following table shows the age distribution, by numbers and per cents of deaths, classified by sex:

Deaths Classified by Sex and Age Periods, with Per Cent by Age Periods for California: December.

Age period	Deaths			Per cent		
	Total	Male	Female	Total	Male	Female
All ages -----	3,993	2,411	1,582	100.0	100.0	100.0
Under 1 year -----	306	172	134	7.7	7.1	8.5
1 to 4 years -----	128	68	60	3.2	2.8	3.8
5 to 9 years -----	58	31	27	1.5	1.3	1.7
10 to 19 years -----	107	50	57	2.7	2.1	3.6
20 to 29 years -----	292	183	109	7.3	7.6	6.9
30 to 39 years -----	391	265	126	9.8	11.0	8.0
40 to 49 years -----	449	294	155	11.2	12.2	9.8
50 to 59 years -----	511	340	171	12.8	14.1	10.8
60 to 69 years -----	589	365	224	14.7	15.1	14.1
70 years and over -----	1,162	643	519	29.1	26.7	32.8

This table shows that relatively more females than males died at the age periods under 20 years as well as at 70 years and over, while relatively more males than females died at the age periods from 20 to 69 years.

REPORT OF THE BUREAU OF TUBERCULOSIS FOR JANUARY, 1916.

By E. L. M. TATE, Director.

January has been spent assisting with the correspondence relative to the federal bill. We have received great support and the bill has aroused interest all over the country. For the first time, people east of the Rockies seem to appreciate that we have a problem here.

There are certain requisites for the care and cure of tuberculosis—proper buildings which must be constructed differently from regular hospitals, the enforced rest, the extra diet, the nursing care and medical supervision, all mean an expenditure of money. A county burdened with a large percentage of nonresidents can not provide this, but a county reimbursed seventy-five cents per diem for these patients would be willing to give these sufferers, if not a chance for recovery, at least, a place where they might cease their wandering and no longer be a center of infection in every community.

Recently at a large meeting where tuberculosis was being discussed, some one remarked that it was a privilege to have had tuberculosis. Instantly there came to my mind many pictures of long lines of beds in hospitals where many patients were making their last fight. I thought of the boy whom I talked with in the county hospital at Los Angeles who told me with quivering lips that he had tried to save money enough to buy a ticket back to the little town in northern New York where he was born and raised, but he was so ill, they had taken him into the hospital to die. I thought of the sailor in the next bed who told me how hard he had tried to save money enough so he could get well. I could write indefinitely of those fighting the "lone game" and if there is any privilege connected with this fight, it is not on the part of the patients. It rests on the shoulders of those who are well who must make the fight for them and it rests on the shoulders of the government to assist in controlling the spread of tuberculosis just as much as it rested with the government to control yellow fever in Cuba and the "Creeping Johnny" in the Panama Canal Zone.

It is impossible to look at the problem of the nonresident indigent in the abstract. To see them in the hospital, talk with them, listen to the comments they make on the way they are treated and then call it a privilege to have tuberculosis!

California is not going to close its doors, it never has and never will; but it must be possible to receive help for patients having no claim on the State—to be helped by the federal subsidy.

One of the most interesting tuberculosis meetings held in the west was a joint meeting of the California Association for the Study and Prevention of Tuberculosis and the San Francisco Society. The programme, in every respect, was most credible, and the attendance, in spite of bad weather, was such as is frequently seen at a national meet-

ing. The only regret was that the visitors could not have had a half day in the new City and County Hospital. Whatever discouragements are attendant on public health work because it seems to go slowly, will be offset by a visit to that hospital.

It is interesting to note that most of the applications for inspection for the subsidy have come from the northern counties. Fourteen counties have applied and it is hoped by the first of July that all of these counties will be placed on the eligible list.

The work of organizing the visiting nursing at Fresno has just been started, as has also the work of the nurse at San Bernardino.

Calls have come in from Mendocino to Ventura counties asking for the service of a rural nurse.

By far the most interesting piece of tuberculosis work that I saw last month was the children's ward in the Los Angeles County Hospital. It is a great inspiration to see these little people who are on frames, taking treatment for tubercular hips, and to see the smiles that are always ready from them, and to realize that here as Von Bering has said—"that tuberculosis in the adult is the end of the song begun in the cradle." Some day the pendulum will swing the other way and our clinics and hospitals will concentrate their energy in every child. The slogan of Baby Week—"Save the Babies, Save the Nation," can be carried out.

That a slight temperature, a tired feeling, a dry cough in childhood are the danger signals, and the reminder always that contact means contagion, when there is tuberculosis in the family, should be impressed on every physician and every family if they are to save these children. Therefore, our contention for more beds in county hospitals, means two things, the comfort of the patient and the saving of the children.

E. L. M. TATE.

Data in Tuberculosis Cases Reported during December, 1915.

Age—		Length of residence in California—	
Under 5 years	6	Under 1 year	42
5 to 14	11	1 year	19
15 to 24	60	2 years	23
25 to 34	126	3 years	16
35 to 44	94	4 years	20
45 and over	91	5 years	14
Unknown	21	6 years	10
Sex—		7 years	14
Male	287	8 years	9
Female	122	9 years	13
Marital condition—		10 years	16
Single	167	10 to 20 years	41
Married	136	Over 20 years	77
Widowed or divorced	28	Unknown	95
Unknown	78	Number of persons in family—	
Dwelling—		Families of 2	45
Detached	117	Families of 3	34
Flat	44	Families from 4 to 16	88
Tenement	36	(Average, 5.)	
Boarding	14	Tuberculosis in family—	
Hotel	24	Father	20
Hospital	36	Mother	20
Other	2	Brother	32
Unknown	136	Sister	16
Housing—		Husband	16
Good	102	Wife	31
Fair	110	Children	2
Poor	32	Others	3
Unknown	165	Bacteriological examination—	
Financial condition—		Tubercle bacilli positive	214
Independent	29	Tubercle bacilli negative	45
Wage-earner	176	Not stated	150
Indigent	39	Prognosis—	
Unknown	165	Good	41
Occupational condition—		Bad	92
Good	61	Doubtful	66
Fair	66	Not stated	210
Poor	28	Type—	
Unknown	254	Tuberculosis of lungs	400
Nativity—		Tuberculosis of other organs	44
California	75	Duplicated	35
Elsewhere in United States	128	Totals—	
Foreign	129	Cases reported with data	409
Unknown	77	Reported at time of death or later	42
Race or color—		Total living cases	367
White	396		
Negro	7		
Indian	0		
Chinese	1		
Japanese	5		

County.	Deaths from pulmonary tuberculosis, December	All cases of tuber- culosis reported in December	County.	Deaths from pulmonary tuberculosis, December	All cases of tuber- culosis reported in December
Alameda -----	41	7	Orange -----	5	-----
Alpine -----	-----	-----	Placer -----	7	8
Amador -----	1	-----	Plumas -----	-----	-----
Butte -----	4	-----	Riverside -----	9	4
Calaveras -----	2	-----	Sacramento -----	13	4
Colusa -----	2	-----	San Benito -----	-----	-----
Contra Costa -----	6	-----	San Bernardino -----	24	2
Del Norte -----	-----	-----	San Diego -----	16	3
El Dorado -----	1	-----	San Francisco -----	72	141
Fresno -----	4	1	San Joaquin -----	16	15
Glenn -----	-----	-----	San Luis Obispo -----	-----	-----
Humboldt -----	1	-----	San Mateo -----	6	2
Imperial -----	7	-----	Santa Barbara -----	3	-----
Inyo -----	2	-----	Santa Clara -----	6	2
Kern -----	3	-----	Santa Cruz -----	6	1
Kings -----	3	-----	Shasta -----	3	-----
Lake -----	1	-----	Sierra -----	-----	-----
Lassen -----	-----	-----	Siskiyou -----	1	1
Los Angeles (city) --	75	162	Solano -----	3	1
Rest of county ----	54	43	Sonoma -----	7	6
Madera -----	3	-----	Stanislaus -----	5	1
Marin -----	2	-----	Sutter -----	-----	-----
Mariposa -----	-----	-----	Tehama -----	1	4
Mendocino -----	1	-----	Trinity -----	-----	-----
Merced -----	-----	-----	Tulare -----	6	-----
Modoc -----	-----	-----	Tuolumne -----	2	-----
Mono -----	-----	-----	Ventura -----	1	1
Monterey -----	1	-----	Yolo -----	-----	-----
Napa -----	2	-----	Yuba -----	-----	-----
Nevada -----	2	1			

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR JANUARY, 1916.

By C. G. GILLESPIE, C.E., Director.

News of Interest.

A month of unusual rain and floods has just been experienced, accompanied by the usual temporary complaints from many sources that water supplies are "pure sparkling mud," that sewers are overflowing and "spreading toilet paper over the streets" and that sewage from septic tanks is standing on the surface of the ground instead of seeping away as "good sewage should." All of which complaints, like the "summer complaint" of sewage disposal plants and the agitation during epidemics, seem never to outlast the direct cause. This is unfortunate. Correction in anticipation of a recurrence should be demanded loudly, not only while the stress of circumstances spurs to action, but in the interval of orderliness which follows.

In Los Angeles County a worthy service has been done the entire community by the supervisors of that county in making a recent appointment of a commission of five sanitary engineers to outline the possibilities of comprehensive sewage collection and disposal throughout the county. It is not expected that the finances of the present commission will permit of more than a pointing out of feasible projects. The final analysis and decision on the best scheme should involve a most thorough study from æsthetic, financial, administrative and sanitary angles. The spirit which has moved, however, is filled with possibilities of incalculable financial saving because it contemplates a comprehensive solution of the tremendous sewage disposal problem involving California's most populous, and one of her most extensive counties. The members of the commission are: Professor Charles Gilman Hyde, Doctor Julius Koebig, Mr. George P. Robinson, Mr. Albert M. Brosius, and the director of this bureau.

According to newspaper accounts, the town of College Park has set a date for an election on the issuance of bonds to connect its sewer system with that of San Jose, thus making possible the abandonment of the present disposal works which for so many years have caused the most bitter complaint in a wide vicinity.

The Santa Fe Railway Company has just concluded the purchase of the first chlorination apparatus for sewage disinfection in this State. The apparatus is also to be automatically regulated, another unusual feature.

Sewage Disposal.

APPLICATIONS FOR PERMITS FILED.

Cities of El Centro and Imperial (jointly). To dispose of Imhoff tank effluent into New River.

City of Willows. To have investigation of possible sewage disposal.

Beverly Hills (Rodeo Land and Water Company). To dispose of proposed sprinkling filter effluent into Benedict Canyon Wash.

Mammoth Copper Company of Kennett, Shasta County. To discharge slag, tailings, sewage and mine water into Little and Big Backbone creeks.

G. W. Locke & Son of Walnut Grove. To discharge the sewage of an oriental quarter into Snodgrass Slough.

Applications were submitted last month and not reported from the following:

Crag View Hotel, Castella. To discharge sewage into or near the Sacramento River.

Shasta Springs Hotel, Shasta Springs. To discharge sewage into or near the Sacramento River.

PERMITS GRANTED.

Town of San Bruno. To construct a septic tank and pumping plant, serving Belle Air Addition, discharging the effluent into subsurface irrigation system.

Beverly Hills (Rodeo Land and Water Company). To construct pumping plant and sprinkling filter, discharging the final effluent into Benedict Canyon Wash.

PLANS FILED.

El Centro and Imperial (jointly). A battery of Imhoff tanks.

Investigations or Inspections.

Paso Robles. Owing to threatened damage suit and general dissatisfaction with present method of disposal of crude sewage into the Salinas River, usually a dry stream, the council is giving serious thought to bettering conditions.

San Luis Obispo. Present discharge of septic sewage into an adjoining creek causes much offense, especially in summer. The commission favor trying sewer farming as a remedy.

Strickland Home for Boys, Los Angeles. Present cesspool and radiating subsurface laterals should be effective in taking care of sewage and the recommendation for a more elaborate scheme has been deferred for the present.

Riverside. Investigation shows that the contemplated sewer farm for disposing of the sewage of the entire main city with the exception of Arlington Heights, at the junction of the old and new channels of the Santa Ana River, is the logical solution of the sewage problem of the city at the present time.

El Centro and Imperial. The cities contemplate disposal of sewage into New River after clarification in Imhoff tanks.

Hermosa Beach. The city is thinking seriously of improving its present vast sand-leaching method of disposal.

Santa Monica. The electrolytic sewage treatment plant was inspected. At the time of the visit the plant was out of commission on account of heavy rains.

Venice. An inspection of the septic tank failed to reveal any particular objection to the plant. The effluent is disposed of by pumpage into the ocean.

Redondo Beach. The septic tank and thirty-acre sewer farm on which alfalfa is grown were inspected. The entire plant is apparently doing good work.

Santa Maria. A brief inspection of the Imhoff tanks and sewer farm showed that the sewage is extremely septic after passing through the three-mile outfall to the plant. The Imhoff tanks were receiving scarcely any attention. The effluent was being deposited on a small two-acre tract, the soil being extremely "sewage-sick."

Long Beach. It is to be hoped that those responsible for the operation of the plant will soon be able to collect data which will show the effectiveness of operation of this plant. On the date of inspection the effluent was extremely turbid. This is said to have been an unusual condition.

Water Supplies.

National City (Sweetwater Water Company). To continue to furnish water to National City and vicinity from the Sweetwater reservoir.

San Diego. To supply filtered water from Lower Otay (since destroyed by flood) and from Marina reservoirs.

PERMITS GRANTED.

Benicia (Benicia Water Company). To chlorinate the surface water supply.

PLANS SUBMITTED—NONE.

National City. Detailed investigation shows that the Sweetwater Lake watershed is subject to heavy permanent and summer-camp pollution, and that under certain conditions, particularly flood, the two or more years' storage afforded is ineffective, carrying pollution to the intake tower by the rapid filling. The distributing system supplies combined irrigation and domestic consumption and treatment cost during the summer would be tremendous. Dependence for safety is to be placed on sedimentation during summer and on chlorination during the winter, according to the recommendations of the bureau. More skilful algæ protection is also advised.

San Diego. This bureau has been asked to "tune up" the new filter plant.

Laboratory Work.

A study of analyses for the month continues to confirm the conclusion that surface waters are without exception hazardous and that during the present flood condition of most streams, the danger of contracting typhoid is vastly increased. The quality of shallow wells is not

uniformly high and often extremely dangerous, leading to the warning that hidden seepage through gravel layers, or down the sides of, or through rusty casings may exist unknown to the owner or consumer. The only supplies reasonably safe are the deep well supplies, but the occasional practice of introducing sewage into the deep gravels threatens the quality of this source of supply also.

All these conditions are best revealed by laboratory analyses. The bureau again expresses its willingness to make analyses of all waters whose purity is in doubt. Applications should be made for regular monthly analyses, if desired. Persons should state the reasons for desiring examinations and describe the source and system. There is no cost to the sender other than for expressage both ways. Samples are analyzed only when collected in the glass-stoppered, sterilized bottles which the bureau sends out and which are to be returned promptly on collection, properly iced.

The following supplies are now being examined at monthly intervals:

Antioch, Benicia, Brawley, Calexico, East Auburn, El Centro, Eureka, Fortuna, Fort Bragg, Holtville, Imperial, Jackson, Kennett, Livermore, Los Banos, Merced, Monrovia, Redding, Rocklin and Ventura.

During the month the following examinations were made:

Chemical analyses of water—44 (partial), 1 (complete).

Bacteriological analyses of water—42.

Bacteriological analyses of sewage—2.

Chemical analyses of sewage—2.

Number of water samples found polluted—26, or 62 per cent of those examined.

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR JANUARY, 1916.

E. J. LEA, Director.

During the month of January two hundred and thirty-nine samples were received at the food and drug laboratory. These samples were classified as follows:

Official.

Foods	83
Drugs	10

Unofficial.

Foods	70
Drugs	2
Miscellaneous	8

Cold Storage.

Foods	66
-------	----

Official Samples.

The official samples this month consisted largely of chopped meats, sausage, frozen egg meats, alimentary pastes and condiments.

Meats. Quite a few of the meat samples contained prohibited preservatives and several contained added cereal without that fact being declared on the label, or by a sign.

Alimentary pastes. The alimentary pastes represented by the samples were examined for the presence of artificial coloring. We find that there is still considerable artificially colored pastes in stock, which were made prior to the adoption of the regulation governing this material. After the old, artificially colored stock is used up this department will rigidly enforce the new regulation.

Frozen egg meats. Nineteen official samples of frozen egg meats, taken from cold storage, have been examined, with the result that nearly all of them showed decomposition and many of the samples were putrid.

In addition to the official samples of frozen egg meats many unofficial samples were taken to better represent the large lots in cold storage. At the present time there are more than 150,000 pounds of questionable frozen egg meats in this State. Nearly all of the lots that have been examined are unfit for human consumption. This department is endeavoring to stop the use of this repulsive material by the cheaper grades of bakeries, which use it in large quantities. Bacteria in some of our recent frozen egg meat samples ran as high as five hundred million per gram, counted from plates, and as high as five billion by direct count. *B. coli* can be demonstrated in many samples in .001 c.c., and in some samples *B. coli* can be demonstrated in .0001 c.c. The bad physical condition of the majority of these egg meats is apparent as soon as they thaw out to room temperature.

Condiments. The condiments collected consisted principally of catsups taken up from restaurants. It has been found that many restaurants buy a good grade of catsup and through carelessness allow it to become badly decomposed. Many of this class of restaurant keepers do not appear to understand the necessity of care in handling such products, and, consequently, lay the blame on the manufacturer. With many restaurants it is the custom to fill up their catsup bottles after they have been partly emptied, and to repeat this process until the contents of the bottle is in a very bad condition. In some cases the bottles are all emptied in one receptacle and the contents recooked. This, of course, will not remedy the matter if spoiled catsup has been included in the batch.

This department desires to emphasize the fact that restaurant keepers will be held responsible for the condition of their catsup, if it can be shown that the material was in good condition when purchased by them.

Drugs. The drug samples collected this month consisted largely of aspirin capsules and tablets. These samples show considerable improvement in regard to the character of the tablets and capsules, but some of the tablets have been short in weight.

Unofficial Samples.

The eighty unofficial samples examined this month consisted of thirty miscellaneous materials. The majority of these samples were examined for state institutions. The samples deviating materially from the specifications were ammonia, soap, coal oil, spices, cheese, eggs and vinegar.

Ammonia. Some of the ammonia samples contained less than 2 per cent of ammonia, while the specifications called for 13 per cent.

Soap. The soap contracts were let on the basis of cost per unit of soap. One of the samples examined contained excessive moisture, which resulted in a loss of 10 per cent of actual soap.

Coal oil. One coal oil sample had a flash point thirty-three degrees below the required flash point.

Cheese. Some of the cheese samples were very poor in quality, corresponding to a commercial grading of "seconds," while the specifications call for "best quality."

Eggs. The egg samples have shown some improvement over previous lots, but there is still a tendency to deliver mixed eggs, consisting of partly fresh, partly storage and partly old eggs.

Vinegar. In several instances distilled vinegar has been delivered for cider or wine vinegar.

As usual, deliveries of all the above materials, which were not up to specifications, were rejected and returned at the dealers' expense.

Cold Storage.

Following is a list of the cold storage samples taken during January:

Figs	2
Frozen eggs	29
Meat	4
Nut meats	21
Poultry	9
Shrimps	1

With the exception of the egg meats, the cold storage samples were all examined to determine their fitness for further storage.

Nut meats. The nut meat samples represent large quantities of this commodity, which have been held for considerable time in cold storage. Many of these nut meats are in excellent condition, but we find also that large quantities have excessive rancidity, and in some cases a high percentage of shrunken and immature meats. These bad nut meats are used in the manufacture of the cheaper grades of candy, and also in certain bakery products. In order to get a practical opinion on the poorer grades of these nut meats, we have submitted samples to several confectioners and also to many housekeepers. In every instance the better class of confectionery manufacturers have condemned the nuts as unfit for use. The dozen, or more, housekeepers have been even more emphatic in their condemnation of this material.

No doubt, many people can eat such nuts without noticeable ill effects, but it is equally true that many people with delicate constitutions might be materially affected by the consumption of rancid nut meats. Few people, if any, would eat this poor grade of nut meats as such, but by mixing them in candy and certain bakery products, which may be more or less highly flavored, they are disguised sufficiently to ensure a large consumption. Children are especially apt to eat large quantities of candy which may contain poor nuts, which may be, and in many cases are, undoubtedly detrimental.

There is no established standard for the amount of rancidity permissible in nut meats. This department will regard nut meats adulterated if a considerable proportion show excessive rancidity, or if they contain a considerable proportion of immature or shrunken meats. No objection will be made to sorting nut meats in order to save the good material which may be present.

Articles in Cold Storage Condemned upon Physical and Chemical Examination as Unfit for Food.

Material	Amount	Locality	Condition	Disposition
Ducks -----	16 lbs.	Oakland -----	Decomposed	Incinerated.
Ducks and geese--	70 lbs.	Oakland -----	Decomposed	Incinerated.
Pork -----	185 lbs.	Oakland -----	Decomposed	Incinerated.
Shrimps -----	1,100 lbs.	Oakland -----	Decomposed	Incinerated.
Ducks and geese--	799 lbs.	San Francisco	Decomposed	Covered with lime.
Chickens -----	409 lbs.	San Francisco	Decomposed	Coal oiled.
Turkeys -----	2,820 lbs.	San Francisco	Decomposed	Converted into fertilizer.
Cheese, poultry, geese and haddie	1,000 lbs.	San Francisco	Decomposed	Coal oiled.
Breakfast cheese-	6 cases	San Francisco	Decomposed	Coal oiled.

SALVAGE FOOD SALES.

Certain dealers make a practice of buying up damaged foods from wholesalers and manufacturers in job lots.

The samples of such material found recently have included wormy, insect infested macaroni and noodles, wormy figs in packages, wormy raisins in packages, decomposed and rotten olives, damaged canned goods of all descriptions, cereal products containing weevils and worms, and various other miscellaneous items.

These materials are frequently sold in small job lots to cheap restaurants and bakeries, although much of this class of goods is sold at retail. In many cases the defects are not noticed unless the material is carefully examined.

Our investigation of this problem has shown that this class of material usually comes from wholesale houses. Each wholesale house has a separate room for damaged goods and it is the practice to periodically make claim on the manufacturers, or parties from whom they buy goods, to cover the damaged materials. In some cases it has been shown that wholesalers recover two or three different times on the same goods. The small jobbers who deal in this class of goods usually know where to find supplies and they buy these materials without a pure food guaranty.

This department has recently taken up official samples from four different dealers in this class of goods, in San Francisco. These dealers have been cited to appear before the State Board of Health for violating the Food Act. As they have no guaranty the cases will be referred to the district attorney for prosecution. Morally the wholesaler is just as guilty as the retailer, because he usually knows the condition of the goods, perhaps better than the retailer.

In our recent campaign in connection with damaged goods this department condemned about ten thousand packages of different food materials. These goods have all been taken to the incinerator and burned in the presence of an inspector.

Articles of Food Condemned upon Physical and Chemical Examination as Unfit for Food.

Material	Amount	Locality	Condition	Disposition
Raisins -----	134 pkgs. (30 oz. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Raisins -----	51 pkgs. (15 oz. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Seeded raisins -----	14 pkgs. (3 lbs. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Figs -----	163 pkgs. (10 oz. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Figs -----	285 pkgs. (6 oz. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Seeded raisins -----	5 pkgs. (10 lbs. ea.) -----	San Francisco -----	Infested with worms -----	Coal oiled.
Catsup -----	43 cans (1 gal. ea.) -----	San Francisco -----	Decomposed, filthy -----	Destroyed.
Tomato catsup -----	564 bots. (12 oz. ea.) -----	San Francisco -----	Decomposed, filthy -----	Incinerated.
Tomato catsup -----	10,000 bots. (pint ea.) -----	San Francisco -----	Decomposed, filthy -----	Incinerated.
Pickles -----	1,625 gals. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Pickles -----	17 bbls. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Cauliflower -----	755 gals. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Cauliflower -----	7 bbls. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Onions -----	100 gals. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Onions -----	10 bbls. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Onion sauce -----	1 bbl. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Bell peppers -----	220 gals. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Cherry peppers -----	7 casks -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Dill weed -----	215 gals. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Dill weed -----	3 bbls. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Dill weed -----	3 casks -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Chili pulp -----	200 gals. -----	San Leandro -----	Decomposed, filthy -----	Destroyed.
Spiced vinegar -----	150 gals. -----	San Leandro -----	Decomposed, filthy -----	Destroyed.
Sauce -----	100 gals. -----	San Leandro -----	Decomposed, filthy -----	Destroyed.
Sweet relish -----	1 bbl. -----	San Leandro -----	Decomposed, filthy -----	Incinerated.
Maple syrup -----	1 bbl. -----	San Leandro -----	Sour, spoiled -----	Coal oiled.
Miscellaneous canned goods -----	2,901 items -----	San Jose -----	Spoiled, swells, decomposed -----	Incinerated.
Miscellaneous canned goods -----	2,615 items -----	San Francisco -----	Spoiled, swells, decomposed -----	Destroyed.
Miscellaneous cereals -----	440 pkgs. -----	San Francisco -----	Wormy, filthy -----	Destroyed.

THE LABELING OF COLD STORED GOODS EXPOSED FOR SALE.

As indicated in the last Bulletin, this department has conferred with representatives of the San Francisco Wholesale Dairy Produce Exchange in the matter of disseminating knowledge among retailers as to the requirements of the Cold Storage Act. This organization has co-operated very willingly and efficiently with this department and has already issued notices through trade journals, and has had special circulars of information printed for distribution among retailers. It has also had proper cold storage signs printed, which may be obtained at cost price.

The special circular on this subject and the resolutions adopted read as follows:

SAN FRANCISCO WHOLESALE DAIRY PRODUCE EXCHANGE
25 CALIFORNIA STREET.

San Francisco, Cal., January 21, 1916.

For the information of all interests concerned in the handling of DAIRY PRODUCTS in the STATE OF CALIFORNIA, this EXCHANGE is desirous of calling your attention to the several provisions affecting said ARTICLES OF FOOD as set forth in

SPECIAL BULLETIN No. 4

**COLD STORAGE
LAWS AND REGULATIONS**

for the enforcement of an Act relating to
COLD STORAGE

ISSUED BY CALIFORNIA STATE BOARD OF HEALTH

Dec. 26, 1913, and reissued as amended June, 1915.

At a meeting of the Exchange held on January 17th, the following preamble and resolution was adopted:

WHEREAS, the California State Board of Health has requested through its official—Mr. E. J. Lea, Director of the State Food and Drug Laboratory—the co-operation of this Exchange in the enforcement of the California Cold Storage Act, and the regulations of the Board relating to the handling and sale of butter, eggs and cheese under aforesaid Act; and

WHEREAS, it is the desire and intent of the membership of this Exchange to comply with every requirement of said law and the regulations of the State Board of Health and to render to said Board and its officers and inspectors all reasonable assistance in their efforts to enforce the law and the regulations of the State Board of Health; now therefore be it

Resolved, That the members of this Exchange will stamp the words "These are Cold Stored Goods" on all invoices for such goods in all cases where the buyer is not present at the time of sale as provided in regulation No. 9 in Special Bulletin No. 4 issued by the California State Board of Health; and that the members will provide their customers with signs on which shall be printed, in form and style as provided by the regulations of the State Board of Health, the words "These are Cold Stored Goods"; that the members of this Exchange will educate their salesmen in such portions of the Act and the regulations which apply to the handling and sale of butter, eggs and cheese and instruct their salesmen to inform all their customers of the provisions of the law and the regulations relative to butter, eggs and cheese.

The Exchange acknowledges the several copies of Special Bulletin No. 4—COLD STORAGE LAWS and REGULATIONS received from the STATE

BOARD OF HEALTH, and advises whom it may concern to provide themselves with a copy of said law that they become thoroughly informed on the subject and thus avoid its infraction.

To our members: we solicit that a copy of this circular be POSTED IN A CONSPICUOUS PLACE in your SHIPPING DEPARTMENT, SALESROOM, and COUNTING ROOM in order that it shall come to the notice of every one engaged in this classification of merchandise.

**SAN FRANCISCO WHOLESALE DAIRY
PRODUCE EXCHANGE.**

J. R. KINSMAN, Secretary.

This department has also taken up the matter with the Los Angeles Wholesale Produce Exchange and hopes to secure the same ready response as it received from the San Francisco organization, as it will undoubtedly be a great benefit to all concerned.

Judging from our experience in enforcing the Pure Food Law, it is apparent that a great deal of annoyance, embarrassment and prosecution can be avoided if the dealers thoroughly understand the requirements of the Cold Storage Act.

FOOD INSPECTION DECISIONS.

Six Food Inspection Decisions have been received since the publication of the last Bulletin. Under section 3, California Pure Food Act, these Decisions actually become law in this State.

These Decisions are a great help, both to manufacturers and food officials, as they establish a definite working basis for the products concerned.

FOOD INSPECTION DECISION 159.

**Certification of Mixtures Containing Coal-tar Colors.
(Amending Food Inspection Decisions 77, 106, and 129.)**

Hereafter, no mixture containing one or more certified coal-tar dyes, in combination with other components, constituents, or ingredients not coal-tar dyes, will be certified unless the manufacturer shall make and deposit with the Secretary of Agriculture a declaration that each and every package in which any of such mixture shall be sold or offered for sale shall have, plainly and conspicuously declared upon the label or container, a statement of the quantity or proportion of the certified dye or dyes present in the mixture.

Food Inspection Decisions 77, 106, and 129 are amended accordingly.

FOOD INSPECTION DECISION 160.

Gluten Products and "Diabetic" Food.

The following definitions and standards for gluten products and "diabetic" food were adopted by the Joint Committee on Definitions and Standards April 9, 1915, and were approved by the Association of American Dairy, Food, and Drug Officials August 3, 1915, and by the Association of Official Agricultural Chemists November 17, 1915:

Ground gluten is the clean, sound product made from wheat flour by the almost complete removal of starch and contains not more than ten per cent (10%) of moisture, and, calculated on the water-free basis, not less than fourteen and two-tenths per cent (14.2%) of nitrogen, not more than fifteen per cent (15%) of nitrogen-free extract (using the protein factor 5.7), and not more than five and five-tenths per cent (5.5%) of starch (as determined by the diastase method).

Gluten flour is the clean, sound product made from wheat flour by the removal of a large part of the starch and contains not more than ten per cent (10%) of moisture, and, calculated on the water-free basis, not less than seven and one-tenth per cent (7.1%) of nitrogen, not more than fifty-six per cent (56%) of nitrogen-free extract (using the protein factor 5.7), and not more than forty-four per cent (44%) of starch (as determined by the diastase method).

Gluten flour, self-raising, is a gluten flour containing not more than ten per cent (10%) of moisture, and leavening agents with or without salt.

"Diabetic" food. Although most foods may be suitable under certain conditions for the use of persons suffering from diabetes, the term "diabetic" as applied to food indicates a considerable lessening of the carbohydrates found in ordinary products of the same class, and this belief is fostered by many manufacturers on their labels and in their advertising literature.

A "diabetic" food contains not more than half as much glycogenic carbohydrates as the normal food of the same class. Any statement on the label which gives the impression that any single food in unlimited quantity is suitable for the diabetic patient is false and misleading.

The foregoing definitions and standards are adopted as a guide for the officials of this department in enforcing the Food and Drugs Act.

FOOD INSPECTION DECISION 161.

Maple Products.

The following definitions and standards for maple products were adopted by the Joint Committee on Definitions and Standards June 4, 1915, and were approved by the Association of American Dairy, Food, and Drug Officials August 3, 1915, and by the Association of Official Agricultural Chemists November 17, 1915:

Maple sugar, maple concrete, is the solid product resulting from the evaporation of maple sap or maple sirup.

Maple sirup is sirup made by the evaporation of maple sap or by the solution of maple concrete, and contains not more than thirty-five per cent (35%) of water and weighs not less than eleven (11) pounds to the gallon (231 cu. in.).

The foregoing definitions and standards are adopted as a guide for the officials of this department in enforcing the Food and Drugs Act.

FOOD INSPECTION DECISION 162.

Egg Noodles and Plain Noodles.

The following definitions and standards for egg noodles and plain noodles were adopted by the Joint Committee on Definitions and Standards June 4, 1915, and were approved by the Association of American Dairy, Food, and Drug Officials August 3, 1915, and by the Association of Official Agricultural Chemists November 17, 1915:

Noodles, egg noodles, are dried alimentary pastes made from wheat flour and egg. They contain not less than five per cent (5%) by weight of the solids of whole, sound egg exclusive of the shell.

Plain noodles, water noodles, are dried alimentary pastes made from wheat flour without egg, or with less than five per cent (5%) by weight of the solids of whole, sound egg exclusive of the shell.

Standards for moisture in these products are under consideration.

The foregoing definitions and standards are adopted as a guide for the officials of this department in enforcing the Food and Drugs Act.

FOOD INSPECTION DECISION 163.

Amending Regulation 29, Which Relates to Marking the Quantity of Food in Package Form.

Regulation 29 of the Rules and Regulations for the Enforcement of the Food and Drugs Act is hereby amended by striking out paragraphs (d) and (e), and substituting therefor the following:

(d) If the quantity of the contents be stated by weight or measure, it shall be marked in terms of the largest unit contained in the package, except that, in the case of an article with respect to which there exists a definite trade custom for marking the quantity of the article in terms of fractional parts of larger units, it may be so marked in accordance with the custom. Common fractions shall be reduced to their lowest terms; decimal fractions shall be preceded by zero and shall be carried out to not more than two places.

(e) Statements of weight shall be in terms of avoirdupois pounds and ounces; statements of liquid measure shall be in terms of the United States gallon of 231 cubic inches and its customary subdivisions, i. e., in gallons, quarts, pints, or fluid ounces, and shall express the volume of the liquid at 68° F. (20° C.); and statements of dry measure shall be in terms of the United States standard bushel of 2,150.42 cubic inches and its customary subdivisions, i. e., in bushels, pecks, quarts, or pints; provided that statements of quantity may be in terms of metric weight or measure. Statements of metric weight should be in terms of kilograms or grams. Statements of metric measure should be in terms of liters or centiliters. Other terms of metric weight or measure may be used if it appears that a definite trade custom exists for marking articles with such other terms and the articles are marked in accordance with the custom.

FOOD INSPECTION DECISION 164.

Colors in Food.

(AMENDMENT TO FOOD INSPECTION DECISIONS 76, 117, AND 129.)

Food Inspection Decision 76 is hereby amended by striking out of the list of permitted dyes contained therein, the words:

Yellow shades:

4. Naphthol yellow S.

and substituting therefor the words:

Yellow shades:

4. Naphthol yellow S.

94. Tartrazine.

Food Inspection Decisions 117 and 129 are also amended so that, hereafter, the coal-tar dyes which may be used in food, subject to the provisions of Food Inspection Decisions 76, 117 and 129, shall be the following:

Red shades:

107. Amaranth.

56. Ponceau 3 R.

517. Erythrosine.

Orange shade:

85. Orange I.

Yellow shades:

4. Naphthol yellow S.

94. Tartrazine.

Green shade:

435. Light green S. F. yellowish.

Blue shade:

692. Indigo disulfoacid.

Cases Referred to District Attorneys, January 8, 1916.

Name of article	Offense	Accused dealer	Locality
Sausage -----	Adulterated and mislabeled. Substitution of other material.	May's Market -----	Hayward.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Vienna Bakery, Frank Ficenc, prop.	Oakland.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Motta Brothers -----	San Leandro.
Chopped meat -----	Adulterated. Sample contained sulfur dioxide.	Palace Market, Thos. Tuite, prop.	Redwood City.
Aromatic spirits of ammonia	Adulterated and mislabeled. Materially below U. S. P. standard.	Ryan's Drug Store, P. A. Ryan, prop.	Redwood City.
Camphorated oil -----	Adulterated and mislabeled. Other material substituted for camphor.	Young Drug Co., Inc. -----	Redwood City.
Spirits of nitre -----	Adulterated and mislabeled. Sample below professed standard.	Morse's Pharmacy, E. E. Johnston, prop.	San Mateo.
Camphorated oil -----	Adulterated and mislabeled. Other material substituted for camphor.	Hill Pharmacy, H. A. Cavassa, prop.	Daly City.
Aromatic spirits of ammonia	Adulterated and mislabeled. Materially below U. S. P. standard.	Peninsula Drug Co., H. A. Cavassa, prop.	So. San Francisco.
Pork sausage -----	Adulterated. Contained sulfur dioxide.	Western Avenue Meat Market, Phillip Ruiz.	Petaluma.
Chopped meat. -----	Adulterated. Contained sulfur dioxide.	Western Avenue Meat Market, Phillip Ruiz.	Petaluma.
Chopped meat -----	Adulterated. Contained sulfur dioxide.	Wing Sung Co. -----	Stockton.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	P. and G. Hasapis -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Loeb-Fleishman & Co. (guarantors).	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Swift & Co. (guarantors) -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Mrs. M. Kanowsky -----	Los Angeles.

Name of article	Offense	Accused dealer	Locality
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	R. Akimoto -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	E. Pendleton -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	H. Rustige -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	H. Wirz -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	S. Hubbell -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	The Buttercup Dairy, H. F. Ludwig, prop.	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	H. G. Chaffee Co., Inc.-----	South Pasadena.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	A. Artz -----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	H. G. Chaffee Co., Inc.-----	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Armour & Co. (guarantor)-----	Los Angeles.
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Nevada Lunch Counter, Stathos & Goomas, prop.	San Francisco.
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	H. N. Edlin, Inc.-----	San Francisco.
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Baltimore Oyster and Chop House, Geo. Bonos.	San Francisco.

Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Morning Star Oyster House and Restaurant, Mario Metros, prop.	San Francisco.
Aromatic spirits of ammonia -----	Adulterated and mislabeled. Materially below U. S. P. standard.	Richmond Pharmacy, E. M. Ferguson, prop.	Richmond.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Independent Meat Market, Deatsch & Lancaster, props.	Richmond.
Prepared mustard -----	Mislabeled. Turmeric not declared on label.	Hudspeth Bros. & Kistler	Eagleville.
Prepared mustard -----	Mislabeled. Turmeric not declared on label.	W. H. and S. R. Mayfield	Eagleville.
Saltpeter -----	Adulterated and mislabeled. Other material substituted for saltpeter.	New England Market, A. J. Osgood, prop.	Los Angeles.
Frozen eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	A. Perl	Los Angeles.
Frozen eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Banner Produce Co.	Los Angeles.
Frozen eggs ¹ -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	B. Horwitz	Los Angeles
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Flaws Egg and Poultry Co.	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	S. Ginsberg	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	H. Ginsberg	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	A. Levin	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	K. Horinchi	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	J. J. Connelly	Los Angeles.
Eggs -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid animal substance.	Joe Flesia	Los Angeles.
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Mission Lunch Counter, Paul Condos, prop.	San Francisco.

¹ Referred on eight counts.

Name of article	Offense	Accused dealer	Locality
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Baltimore Restaurant, J. Dimdorff, prop.	San Francisco.
Catsup -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	Ideal Fair Lunch Counter, Peter N. Bitsas, prop.	San Francisco.
Catsup ² -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Tomato pulp -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Leicestershire -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Pickles -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Piccalilli -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Piccalilli -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Capers -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Onions -----	Adulterated and mislabeled. Consisted of filthy, decomposed and putrid vegetable substance.	J. Gollober -----	San Francisco.
Aspirin ³ -----	Adulterated and mislabeled. Substitution of other material for aspirin.	No Percentage Drug Co.-----	San Francisco.
Aspirin -----	Adulterated and mislabeled. Substitution of other material for aspirin.	Argonaut Drug Co., H. Schwartz.	San Francisco.
Aspirin -----	Adulterated and mislabeled. Substitution of other material for aspirin.	Beck's Pharmacy -----	San Francisco.
Essence of Jamaica ginger-----	Adulterated and mislabeled. Substitution of other material for Jamaica ginger.	Wilson Manufacturing Co. (guarantors).	Sacramento.

²Referred on four counts.³Referred on two counts.

Convictions under the Pure Food Law Reported during January.

Accused dealer	Locality	Product	Charge	Penalty
A. Sutherland Co., Inc.	Oakland	Chocolate	Adulteration and mislabeling	Fined \$5 00
H. Engelberg	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
M. Wakamata	Los Angeles	Eggs	Adulteration and mislabeling	Fined 10 00
S. Sanuki	Los Angeles	Eggs	Adulteration and mislabeling	Fined 10 00
Lin Kee	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
Y. Naruto	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
Phillips & Cytron (guarantors)	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
L. Mori	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
R. T. Simpson	Los Angeles	Eggs	Adulteration and mislabeling	Fined 20 00
Wreden Packing and Provision Co.	Los Angeles	Eggs	Adulteration and mislabeling	Fined 30 00
L. Avedisian	Los Angeles	Eggs	Adulterated	Fined 15 00
California Packing Co.	Los Angeles	Eggs	Adulterated	Fined 10 00
B. Horwitz	Los Angeles	Frozen eggs	Adulterated	Fined 50 00

REPORT OF THE BUREAU OF REGISTRATION OF NURSES FOR JANUARY, 1916.

By ANNA C. JAMMÉ, R.N., Director.

The activities of the Bureau were largely centered in the southern part of the State during the month of January. Inspection of training schools for nurses was made in Los Angeles, San Diego, Santa Ana, Orange, Anaheim, Pomona, Upland and Bakersfield. Riverside, San Bernardino and Redlands were to have been included in this itinerary, but could not be reached owing to flood conditions.

The schools in these localities, with few exceptions, were found to meet the minimum requirements of the board in theoretical and practical instruction. On the whole, it may be safely said, the class of instruction is steadily improving. A keen interest is shown on the part of the staff instructors; the medical lecturers are giving much thought and preparation for their classes, and considering how willingly these busy men give of their time and thought, the schools are very much indebted to them and express great appreciation of this service, which is entirely voluntary. There is but one school in the State which compensates a medical instructor.

The equipment for class work is enlarging; laboratory facilities, charts, lantern slide demonstrations, reference libraries are now being added to the class room equipment. Provision is also being made for study rooms and time for study arranged in the regular daily schedule.

Opportunities for experience in special subjects are being developed in several of these schools, which are of value to the student as well as to the hospital, notably in the county hospitals visited—San Diego and Los Angeles. In the former, students are sent each day to the municipal milk station and there taught the technic of making up the day's feedings for a large number of babies. They are also taken by the instructor to visit the homes of these babies to ascertain if the milk formula is agreeing with the child, as well as to observe other conditions surrounding the baby. This instruction is given by a registered nurse qualified by wide experience in infant work.

In Los Angeles County Hospital opportunities for students of nursing are enlarging enormously as the scope of the service of the hospital broadens. This training school bids fair to soon become the "Bellevue" of the Pacific Coast. Experience may here be found in all branches of nursing, including psychotherapy, radiotherapy, and in the most advanced and scientific treatment of the various classes of disease.

Amongst the interesting features of this hospital is that of the County Library branch. It is housed in a large, well lighted and airy room. There is a reading room for the ambulatory patients; also a good sized and well furnished room for nurses, in which they can study undisturbed.

This is most interesting in view of the fact that patients may be supplied with entertaining reading matter and the tedium of illness and convalescence relieved; also the students of the training school may obtain their references and required reading without going to the City Library. If the branch can not supply the material required, the librarian may call upon the State Library, which always supplements the service of the counties.

There is no more effective ally to the service of the training school than a county free library. Why can't we have one in all of our county hospitals?

Orange County Hospital was also included in this inspection. The training school here is but coming into existence. The hospital is new, well equipped, and in time should be a center for nursing and health work.

There are at the present time nine counties in which training schools are connected with their hospitals, namely: San Francisco, Sacramento, Los Angeles, Santa Clara, San Joaquin, Riverside, San Diego and Orange. Each of these schools meets the minimum requirements of the State Board of Health, with the exception of one. Some of the most attractive nurses' homes in the State are in connection with these county hospitals and in all but one, which is soon to be remedied, the nurses are surrounded with a most comfortable home life. The great lack, however, is, that the nursing can not be developed to the point of its best efficiency, owing to the limitation of nurses. This may be due to a false understanding of the number required for the actual nursing care of the patients or to the want of appreciation of the value of experience in county hospitals on the part of candidates for schools of nursing. Whatever may be the cause, the fact remains that our county hospitals are, as a rule, quite insufficiently staffed by nurses and the school is handicapped in doing its best work by insufficient numbers.

The requirement of the eight-hour law for student nurses, necessitating but seven hours a day and forty-eight hours a week, calls for an increase of at least two-thirds over the former staff and also enlarged living accommodations. This increase of students has not as yet been met and when it is, our county hospitals with their great opportunities should become important centers for nursing and health education in the State.

LIST OF COUNTY AND CITY HEALTH OFFICERS.

Alameda County—

Dr. C. L. McKown.....Niles
 Alameda.....Dr. A. Hieronymus
 Albany.....Dr. F. R. Woolsey
 Berkeley.....Dr. J. J. Benton
 Emeryville.....Dr. A. T. Drennan
 Hayward.....Dr. F. W. Browning
 Livermore.....Dr. J. K. Warner
 Oakland.....Dr. R. M. Higgins
 Piedmont.....Dr. Benj. T. Mouser
 Pleasanton.....Dr. J. Hal Cope
 San Leandro.....Dr. Luther Michael

Alpine County—

Mr. Fred S. Dunlap.....Markleeville

Amador County—

Dr. G. L. Lynch.....Amador City
 Jackson.....George Hambric
 Sutter Creek.....W. A. Burres

Butte County—

Dr. L. L. Thompson.....Gridley
 Biggs.....Geo. E. Harvey
 Chico.....W. H. Marshall
 Gridley.....Dr. L. L. Thompson
 Oroville.....Dr. W. F. Gates

Calaveras County—

Dr. George F. Pache, Angels Camp
 Angels Camp.....Dr. E. W. Weirich

Colusa County—

Dr. G. W. Derosier.....Colusa
 Colusa.....Dr. C. A. Poage

Contra Costa County—

Dr. W. S. George.....Antioch
 Antioch.....Dr. W. S. George
 Concord.....Dr. F. F. Neff
 Hercules.....Dr. M. L. Fernandez
 Martinez.....Dr. Edwin Merrithew
 Pinole.....Dr. M. L. Fernandez
 Pittsburg.....Dr. H. E. Peters
 Richmond.....Dr. Chas. R. Blake
 Walnut Creek.....Dr. C. R. Leech

Del Norte County—

Dr. E. M. Fine.....Crescent City
 Crescent City.....Dr. E. M. Fine

El Dorado County—

Dr. L. M. Leisenring.....Placerville
 Placerville.....P. J. Hall

Fresno County—

Dr. G. L. Long.....Fresno
 Clovis.....Dr. M. S. McMurtry
 Coalinga.....Dr. C. W. Hutchison
 Firebaugh.....Dr. H. J. Greven
 Fowler.....Chas. Chapman
 Fresno.....Dr. A. H. Sweeney
 Kingsburg.....Dr. J. A. Gillespie
 Reedley.....Dr. J. D. Hare
 Sanger.....Dr. Thos. F. Madden
 Selma.....Dr. O. H. Steinwand

Glenn County—

Dr. F. M. Lawson.....Willows
 Orland.....Dr. D. L. Martin
 Willows.....Dr. F. X. Tremblay

Humboldt County—

Dr. Carl T. Wallace.....Eureka
 Arcata.....Dr. G. W. McKinnon
 Blue Lake.....Dr. Chas. N. Mooney
 Eureka.....Dr. L. A. Wing
 Ferndale.....Dr. J. A. Lane
 Fortuna.....Dr. Orville Rockwell

Imperial County—

Dr. F. H. Carter.....El Centro
 Brawley.....S. A. Armstrong
 Calexico.....Dr. H. C. Richter
 El Centro.....Dr. F. A. Burger
 Holtville.....J. C. Nale
 Imperial.....Dr. C. E. Standlee

Inyo County—

Dr. I. J. Woodin.....Independence
 Bishop.....Dr. C. E. Turner

Kern County—

Dr. C. A. Morris.....Bakersfield
 Bakersfield.....Dr. P. J. Cuneo
 Delano.....
 Maricopa.....Dr. H. N. Taylor
 McKittrick.....Dr. W. H. Cook
 Taft.....Dr. F. C. Galehouse
 Tehachapi.....Dr. N. J. Brown, Jr.

Kings County—

Dr. C. L. Scott.....Hanford
 Corcoran.....Dr. J. T. Peery
 Hanford.....Dr. B. Robbins
 Lemoore.....Dr. W. P. Byron

Lake County—

Dr. W. E. Upton.....Kelseyville
 Lakeport.....P. H. Millberry

Lassen County—

Dr. W. E. Dozier.....Susanville
 Susanville.....Dr. E. S. Drucks

Los Angeles County—

Dr. J. L. Pomeroy.....Los Angeles
 Alhambra.....Dr. F. E. Corey
 Arcadia.....Dr. Chas. D. Gaylord
 Avalon.....Dr. J. J. Peckham
 Azusa.....Dr. L. W. Atkinson
 Beverly Hills.....Dr. Lowell G. Frost
 Burbank.....Dr. E. H. Thompson
 Claremont.....Dr. F. W. Thomas
 Compton.....J. W. Stone
 Covina.....Dr. J. D. Reed
 Eagle Rock.....Dr. C. H. Phinney
 El Monte.....Dr. S. L. Corpe
 Glendale.....Dr. R. E. Chase
 Glendora.....Dr. A. L. McCarty
 Hermosa Beach.....B. F. Brown
 Huntington Park.....Dr. W. Thompson
 Inglewood.....Dr. H. A. Putnam
 Long Beach.....Dr. R. L. Taylor
 Lordsburg.....Dr. J. E. Hubble
 Los Angeles.....Dr. L. M. Powers
 Manhattan Beach.....Llewellyn Price
 Monrovia.....Fred S. Whitcomb
 Pasadena.....Dr. Stanley P. Black
 Pomona.....Dr. N. J. Rice
 Redondo Beach.....Dr. D. R. Hancock
 San Fernando.....Dr. Benj. B. Ward
 San Gabriel.....Dr. Ruth Purcell
 San Marino.....
 Santa Monica.....Dr. Chas. G. Shipman
 Sawtelle.....Dr. A. B. Hromadka
 Sierra Madre.....Dr. R. H. Mackerras
 South Pasadena.....Dr. C. F. Metcalf
 Tropic.....Dr. Wm. C. Mabry
 Venice.....Dr. W. M. Kendall
 Vernon.....Dr. O. R. Stafford
 Watts.....Dr. E. J. Riche
 Whittier.....Dr. W. H. Stokes

Madera County—

Dr. L. St. John Hely.....Madera
 Madera.....Dr. L. St. John Hely

Marin County—

Dr. J. H. Kuser.....Novato
 Belvedere.....Dr. Florence Scott
 Larkspur.....Dr. J. E. McCue
 Mill Valley.....James V. Chase
 Ross.....Dr. Harry O. Hund
 San Anselmo.....Dr. O. W. Jones
 San Rafael.....Dr. W. J. Stone
 Sausalito.....Dr. A. H. Mays

Mariposa County—

Dr. Paul C. Alexander.....Mariposa

Mendocino County—

Dr. Judson Liftchild.....Ukiah
 Fort Bragg.....Dr. F. McLean Campbell
 Point Arena.....N. A. McCallum
 Potter Valley.....L. H. Neil
 Ukiah.....Dr. J. Liftchild
 Willits.....Dr. F. C. Gunn